

**Zepf Center  
Toledo, Ohio and  
City of Toledo  
Toledo, Ohio**

**Phase II Environmental Site Assessment  
Former Heat Treating Facility  
511 Southard Avenue  
Toledo, Ohio**

**July 2018**





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July 10, 2018

Project No. 1664002

Mr. Marc Gerdeman  
City of Toledo  
Quilter Environmental Center  
348 South Erie Street  
Toledo, Ohio 43602

**Phase II Environmental Site Assessment  
Former Heat Treating Facility  
511 Southard Avenue  
Toledo, Ohio**

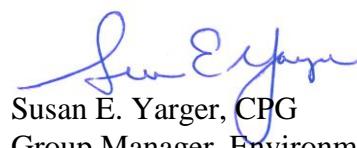
Dear Mr. Gerdeman:

The final report for the Phase II Environmental Site Assessment (ESA) conducted for the City of Toledo (City) conducted for the City of Toledo (City) and the Zepf Center (Zepf) by TTL Associates, Inc. (TTL) for the above-referenced site under The City's U.S. EPA Brownfields Assessment Grant is enclosed. This assessment was authorized by your acceptance of our Proposal No. 1664002, dated June 13, 2018.

TTL appreciates the opportunity to provide the City and Zepf with our environmental services. If you have any questions please contact Ms. Susan Yarger at (419) 214-5060.

Sincerely,

**TTL Associates, Inc.**

  
Susan E. Yarger, CPG  
Group Manager, Environmental Services

  
Robert S. Ruse, Ph.D., P.E.  
President

**PHASE II ENVIRONMENTAL SITE ASSESSMENT  
FORMER HEAT TREATING FACILITY  
511 SOUTHARD AVENUE  
TOLEDO, OHIO**

**FOR**

**THE CITY OF TOLEDO  
QUILTER ENVIRONMENTAL CENTER  
348 SOUTH ERIE STREET  
TOLEDO, OHIO**

**AND**

**ZEPF CENTER  
424 WEST WOODRUFF AVENUE  
TOLEDO, OHIO**

**SUBMITTED**

**JULY 10, 2018  
TTL PROJECT NO. 1664002**

**TTL ASSOCIATES, INC.  
1915 N. 12TH STREET  
TOLEDO, OHIO 43604  
(419) 324-2222**



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## **1.0 INTRODUCTION**

This report presents the methodologies and findings of a Phase II Environmental Site Assessment (ESA) conducted for the City of Toledo (City) and the Zepf Center (Zepf) by TTL Associates, Inc. (TTL) in June and July 2018 for the site located at 511 Southard Avenue, in Toledo, Lucas County, Ohio (site) under the City's U.S. EPA Brownfields Assessment Grant. The City retained TTL to perform this Phase II ESA based on the results of the Phase I ESA completed in June 2018.

### **1.1 Purpose**

The Phase II ESA was conducted to evaluate whether soil and/or groundwater at the site have been impacted by the following recognized environmental conditions (RECs) identified in the Phase I ESA:

- The use of the site and westerly adjoining property as an automobile garage and filling station for at least 25 years.
- The historical industrial use of the site for over 30 years and the historical industrial use of the northerly, northeasterly, and easterly adjoining properties for over 60 years including the use and storage of various chemicals, for production and heat-treating purposes.
- The leaks, spills, and staining associated with the compromised containers of unknown contents and the fractured floors throughout the site.
- The unknown condition and use of the pit located in the northern portion of the site.
- The asbestos contaminated piles of debris, dirt, and building materials throughout the site.

The Phase II ESA did not include assessment for asbestos containing materials (ACM) at the site. ACM was previously identified at the site and an estimate for the removal of the ACM and debris was obtained from an asbestos abatement contractor by the owner. None of the 55-gallon drums, ASTs or containers were sampled during this Phase II ESA.

### **1.2 Site Location**

The site is located The site is located approximately 60 feet northeast of the intersection of Southard Avenue and North 12<sup>th</sup> Street on the north side of Southard Avenue in Toledo, Lucas County, Ohio. Refer to Figure 1.0 for a map showing the approximate location of the site.

### **1.3 Site Background**

The site is approximately 0.34 acre in area and consists of four parcels. The site was developed with at least one commercial storefront building and five residential structures in the late 1800s and was developed with at least ten residential structures from the early 1900s to the early 1930s. From at least the late 1930s to the mid-1960s, the site was developed with at least two

commercial structures associated with a tire shop, gasoline station, and automobile repair garage. From 1965 to 2016, the site was developed with one approximately 9,380 square-foot industrial building. The building was occupied by an industrial heat treating company from 1965 to the 1990s and was utilized for storage from at least the 1990s to 2016. In 2017, the site building was partially demolished and the site is currently occupied by piles of discarded building materials, stored equipment and vehicles, and piles of debris and is surrounded by a chain link fence.

The site and westerly adjoining area (1902 North 12<sup>th</sup> Street) were occupied by a gasoline station and automobile repair garage from at least the late 1930s to the mid-1960s. The buildings associated with the former gasoline station/automobile repair garage were located on the western portion of the site and according to Sanborn Fire Insurance (Sanborn) maps, three underground storage tanks (USTs) were located in the area adjoining the site to the west. The structures associated with the former gasoline station/automobile repair garage were demolished in at least the mid-1960s and converted into a parking lot.

In 2007, a geophysical survey was conducted in the area of the former USTs and one anomaly indicative of a UST was identified. In February 2007, test pitting activities were performed and one UST was located. Upon further investigation, the UST could not be entirely uncovered because the eastern portion of the tank extended approximately three feet beneath the western portion of the site building, therefore, a closure-in-place was performed. Final closure samples collected met the Ohio Department of Commerce, Division of State Fire Marshal, Bureau of Underground Storage Tank Regulations (BUSTR) Action Levels and no groundwater was encountered during the removal activities. No Further Action (NFA) status was issued in August 2007. Based on the NFA regulatory status, the current UST partially located in the western portion of the site was not considered to be a REC in connection with the site, however, the historical use of the site as an automobile repair garage and gasoline station for at least 30 years was considered to be a REC.

The site was occupied by a heat-treating facility from 1965 to the 1990s. The historical use of the site including the use and storage of various chemicals for production and heat-treating purposes for over 30 years was considered to be a REC in connection with the site.

Environmental Risk Information System (ERIS) identified the site, Southard Avenue Asbestos Site, on the Superfund Enterprise Management System (SEMS) database. According to the database, the site (Site ID: 0507885) was placed on the SEMS database in April 2018 and the site is a removal site only with no site assessment work needed. The site is not listed on the National Priority List (NPL) and is not a federal facility. During site reconnaissance activities, TTL observed miscellaneous stored industrial equipment and vehicles, and piles of debris, dirt, and building materials throughout the site. The piles of debris, dirt, and building materials are reportedly contaminated with asbestos from asbestos containing materials (ACM) that were not properly abated prior to building demolition. The asbestos contaminated piles of debris, dirt, and building materials are considered to be a REC in connection with the site.

TTL observed one five-gallon bucket of unknown contents, one compressed gas canister, two 400-gallon aboveground storage tanks (ASTs) that appeared to be empty, one 8,000-gallon AST with an oily sheen observed on standing water surrounding the manufacturing equipment, and at least seven 55-gallon drums of unknown contents throughout the site. There may be residual oil

in the 8,000-gallon AST and in the manufacturing equipment. These materials and containers appeared to be compromised and evidence of releases and staining were observed near the containers and throughout the central portion of the site. In addition, the concrete floors in the area appeared to be heavily fractured and compromised. The leaks, spills, and staining associated with the unknown containers and heavily fractured floors, was considered to be a REC in connection with the site.

TTL observed a pit in the northern portion of the site. The pit was partially covered by debris therefore, the interior was not observed. The unknown condition and former use of the pit was considered to be a REC in connection with the site.

The area to the north and northeast of the site (518, 520, and 522 State Street) were occupied by an industrial heat-treating facility from at least the 1930s to the 1990s and the area to the east of the site (519 Southard Avenue) and the site building were occupied by an industrial heat-treating facility from at least the mid-1960s to the 1990s. The historical industrial use of the northerly, northeasterly, and easterly adjoining properties including the use and storage of various chemicals for production and heat-treating purposes for over 60 years was considered to be a REC in connection with the site.

## **2.0 FIELD ACTIVITIES**

Field activities were conducted in accordance with TTL's Sampling and Analysis Plan (SAP) dated June 2018 and the US EPA-approved Quality Assurance Project Plan (QAPP). The field activities at the site included advancing twelve Geoprobe® soil borings, field screening of soil samples, and collecting soil and groundwater samples for laboratory analysis. Standard Occupational Safety and Health Administration health and safety procedures were followed during field activities to ensure the safety of field personnel. The field activities are described in this section.

### **2.1 Drilling and Associated Soil Sampling**

TTL advanced twelve soil borings (GB-1 through GB-12) using Geoprobe® drilling methodology at the site on June 14 and 15, 2018 under the supervision of a TTL geologist. Due to the partially demolished building, various equipment and debris covered a good portion of the site. Therefore, the number of borings was limited and the locations of the borings were restricted.. Soil borings were advanced in the following areas:

- Three soil borings (GB-1 through GB-3) on the western portion of the site in the vicinity of the former filling station and automotive repair.
- Eight soil borings (GB-4 through GB-7 and GB-9 through 12) located throughout the site to evaluate the pits, former industrial use of the site, and the northerly, northeasterly, and easterly adjoining industrial use.
- One soil boring (GB-8) in the southwestern portion of the former building to assess for impacts from the historic automobile repair activities on the site.

The approximate soil boring locations are depicted on Figure 2.0.

The Geoprobe® soil borings were completed to depths of approximately 12 to 16 feet below ground surface (bgs) with the exception of GB-4, which was terminated due to thick concrete (at least 30 inches). The stratigraphy encountered in borings GB-1 through GB-3 generally consisted of fill consisting of sand, gravel and bricks overlying sand. Recovery in these borings was poor, but the fill extended to at least 8 feet bgs. The stratigraphy encountered in borings GB-5 through GB-12 generally consisted of approximately three to 18 inches of concrete underlain by sandy clay, and clay and intermittent sand to the boring termination depths. Fill was encountered above the sandy clay in borings GB-5, GB-9, GB-10, GB-11 and GB-12. Several intervals had very limited recovery. Groundwater was encountered in each of the soil borings, except GB-4, at depths between 5 and 12 feet bgs. Appendix A contains copies of the soil boring logs developed during the Phase II ESA drilling activities.

Soil samples were collected continuously in four-foot increments from each Geoprobe® borehole within disposable acetate sleeves so that materials encountered would be collected, observed and described in an undisturbed state. Sampling equipment was decontaminated prior to each sampling run to minimize the potential for sample cross contamination. United States

Environmental Protection Agency (U.S. EPA)-approved sampling procedures were followed to ensure sample integrity.

Soil samples collected from each boring were vertically split into two components; one for field screening and one for laboratory analysis. The samples for field screening were placed in resealable plastic bags and screened on site using a MiniRAE® photoionization detector (PID) for preliminary assessment of samples for the presence of volatile organic vapors. The PID was calibrated using 100 parts per million (ppm) isobutylene gas per the manufacturer's instructions. The PID screening was conducted following the accumulation of head space vapors from each sample after it was placed within the resealable bag.

The PID readings ranged from 0.0 to 1.2 ppm. Oily odors were noted in soil borings GB-5 through GB-11 from approximately one foot to six feet. Oil droplets were noted in the groundwater from GB-7 and a sheen was observed on the groundwater in GB-12.

Based on field observations and professional judgment, one soil sample from each boring was submitted for laboratory analysis. The samples were collected from the intervals that appeared most likely to be impacted based on field screening results, site stratigraphy, and the potential source of impact. Samples were labeled, immediately placed in a cooler containing ice, and shipped with appropriate chain of custody records, to ESC Lab Sciences in Mt. Juliet, Tennessee (ESC), an Ohio Environmental Protection Agency (OEPA) Voluntary Action Program (VAP) certified laboratory specified in the QAPP, for analysis.

## **2.2      Groundwater Sampling**

Sufficient groundwater for sampling was encountered in soil borings GB-5, GB-6, GB-9, GB-11, and GB-12. TTL collected groundwater samples by setting temporary wells, which consisted of one-inch diameter PVC screens and risers into the boreholes. After allowing sufficient water to enter the temporary well, a groundwater sample was collected utilizing a peristaltic pump and dedicated, disposable tubing. Groundwater samples were transferred from the tubing to laboratory-cleaned sample containers. After collection of the groundwater samples, the temporary wells were removed and the boreholes backfilled with soil cuttings and bentonite chips. The groundwater samples were immediately placed in a cooler containing ice and transported with the soil samples to ESC for analysis.

## **2.3      QA/QC Sampling**

Based on the number of samples collected, two soil duplicates, one groundwater duplicate, two matrix spikes and two matrix spike duplicates were submitted for laboratory analysis as QA/QC samples. The QA/QC samples were immediately placed in a cooler containing ice and transported with the soil and groundwater samples to ESC. The QA/QC samples were analyzed for the same analyses as the collected samples.

### **3.0 ANALYTICAL RESULTS**

This section presents a summary of the soil and groundwater sample analytical data. The laboratory analyses were performed by ESC. A copy of the laboratory report is included in Appendix B.

Based on TTL's understanding of site conditions and the nature of potential site impact from the identified RECs, eleven soil samples, five groundwater samples and five QA/QC samples were analyzed for the following:

- The soil samples collected from GB-1 through GB-3 were analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) using U.S. EPA Method 8260, polynuclear aromatic hydrocarbons (PNAs) using U.S. EPA Method 8270, and total petroleum hydrocarbons (TPH) gasoline range organics (GRO) and diesel range organics (DRO) using U.S. EPA Method 8015M.
- The soil samples collected from GB-5 through GB-7 and GB-9 through GB-12 were analyzed for: PNAs using U.S. EPA Method 8270, TPH-DRO and oil range organics (ORO) using U.S. EPA Method 8015M and cyanide using U.S. EPA Method 9012B.
- The soil sample collected from GB-8 was analyzed for: volatile organic compounds (VOCs) using U.S. EPA Method 8260, PNAs using U.S. EPA Method 8270, TPH-GRO, DRO and ORO using U.S. EPA Method 8015M and cyanide using U.S. EPA Method 9012B.
- The groundwater samples collected from GB-5, GB-6, GB-9, GB-11, and GB-12 were analyzed for: PNAs using U.S. EPA Method 8270, and cyanide using U.S. EPA Method 9012B.

QA/QC samples were analyzed for the same analyses as the collected samples.

#### **3.1 Soil Analytical Data**

The reported soil concentrations were compared to the OEPA VAP Generic Direct Contact Standards (GDCS) for Residential land use, Commercial/ Industrial land use, Construction/Excavation Workers, the VAP Leach-Based Soil Values (LBSV), and the BUSTR Closure and Site Check Action Levels (ALs). The soil analytical data, which are summarized in Table 1.0, indicate the following:

- The following VOCs were detected in the submitted soil samples at concentrations below the VAP GDCS, VAP LBSV, and BUSTR ALs: 1,2,4-trimethylbenzene (TMB), and xylenes. No other VOCs were detected in the submitted soil samples.
- The following PNAs were detected in the submitted soil samples at concentrations above the VAP GDCS for residential land use and BUSTR ALs: benzo(a)anthracene (GB-1, GB-2, and GB-3), benzo(a)pyrene (GB-1, GB-2, and GB-3), benzo(b)fluoranthene (GB-1, GB-2, and GB-3), dibenzo(a,h)anthracene (GB-1, GB-2, and GB-3), indeno(1,2,3-cd)pyrene (GB-1 and GB-3), and naphthalene (GB-1).

- The following PNAs were detected in the submitted soil samples at concentrations above the VAP GDCS for commercial/industrial land use: benzo(a)anthracene (GB-1), benzo(a)pyrene (GB-1, GB-2, and GB-3), benzo(b)fluoranthene (GB-1), and dibenz(a,h)anthracene (GB-1)..
- The following PNAs were detected in the submitted soil samples at concentrations below the VAP GDCS, and BUSTR ALs: anthracene, acenaphthene, acenaphthylene, benzo(ghi)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, fluorene, phenanthrene, pyrene, 1-methylnaphthalene, and 2-methylnaphthalene. No other PNAs were detected in the submitted soil samples.
- Cyanide was detected in four of the submitted soil samples at concentrations below the VAP GDCS for Residential land use, Commercial/ Industrial land use, and Construction/ Excavation Workers.
- TPH GRO was detected in soil samples GB-1, GB-2, and GB-3 at concentrations below the BUSTR AL for clay-type soils. TPH-DRO (GB-1, GB-3, GB-5, GB-6, GB-7, and GB-8) and ORO (GB-1, GB-2, GB-3, GB-5, GB-6, GB-7, and GB-8) were detected at concentrations below the BUSTR ALs for clay-type soils.

### **3.2 Groundwater Analytical Data**

The reported groundwater concentrations were compared to the VAP Generic Unrestricted Potable Use Standards (GUPUS). The groundwater analytical data, which are summarized in Table 2.0, indicate the following:

- The following PNAs were detected in the submitted groundwater samples at concentrations above the VAP GUPUS: benzo(a)anthracene (GB-5, GB-11, and GB-12), benzo(a)pyrene (GB-5 and GB-11), benzo(b)fluoranthene (GB-5, GB-11 and GB-12), indeno(1,2,3-cd)pyrene (GB-5) and naphthalene (GB-12).
- The following PNAs were detected in the submitted groundwater samples at concentrations below the VAP GUPUS: anthracene, acenaphthene, acenaphthylene, benzo(ghi)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, fluorene, phenanthrene, pyrene, 1-methylnaphthalene, and 2-methylnaphthalene.
- Cyanide was detected in each groundwater sample for which it was analyzed at concentrations below the VAP GUPUS.

### **3.3 Quality Control Analytical Data**

Two field duplicates of soil samples GB-7 (DUP-1) and GB-8 (DUP-2); one matrix spike/matrix spike duplicate (MS/MSD) for soil; one field duplicate of groundwater sample GB-5W; and one MS/MSD for groundwater were submitted to the laboratory for analysis.

The quality control analytical data, which are summarized in Tables 1.1 and 2.1, indicate the following:

- Two VOCs were detected in GB-8 and the respective duplicate. Xylenes were within the prescribed relative percent difference and are considered to be valid. 1,2,4-trimethylbenzene was outside the advisory limits, the parent sample concentration is lower than the field duplicate concentration; therefore, the data are still usable but may be biased low. No other VOCs were detected in either the parent soil sample or the duplicate.
- Nine PNA constituents were detected in the parent sample and two PNA constituents were detected in the duplicate sample. The relative percent differences of the field duplicate sample for the PNA analysis are outside acceptable limits. Due to the relative percent differences being outside of acceptable limits, the higher concentration should be used as a conservative estimated value.
- Cyanide was not detected in the parent sample or the duplicate sample.
- TPH-DRO and TPH-ORO were within the prescribed percent difference and are considered to be valid. TPH-GRO was outside the advisory limits, the parent sample was non-detect with a low detection of this constituent in the duplicate sample; therefore, the data are still usable but may be biased low.
- A total of 13 PNA constituents were detected in the parent groundwater sample and 11 in the duplicate. The relative percent differences were outside the acceptable limits. With the exception of pyrene, the concentrations in the parent sample were higher than the concentrations in the duplicate. Due to the relative percent differences being outside of acceptable limits, the higher concentration should be used as a conservative estimated value.
- Cyanide was detected in the parent groundwater sample but not the duplicate resulting in a relative percent difference outside of acceptable limits. Due to the relative percent difference being outside of acceptable limits, the higher concentration should be used as a conservative estimated value.
- MS recoveries for BTEX constituents were below acceptable standards, the MSD recoveries for BTEX constituents were within acceptable standards and the relative percent differences were outside laboratory control limits. The data are usable but may be biased low.
- The MS/MSD recoveries and relative percent differences are within acceptable limits for PNAs (soil and groundwater), TPH-GRO (soil only) and cyanide (groundwater). The MS/MSD recoveries and relative percent differences are outside of acceptable limits for cyanide (soil). The matrix spike recovery was above the acceptable value, the data are usable, but may be biased high.
- Naphthalene detected in groundwater sample GB-12 was flagged due to naphthalene being detected in the associated blank.

## **4.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS**

This section provides a summary of the findings and conclusions of the Phase II ESA investigation and associated recommendations.

### **4.1 Summary**

The findings of this Phase II ESA are summarized as follows:

- The stratigraphy encountered in borings GB-1 through GB-3 generally consisted of fill consisting of sand, gravel and bricks overlying sand. Recovery in these borings was poor, but the fill extended to at least 8 feet bgs. The stratigraphy encountered in borings GB-5 through GB-12 generally consisted of approximately three to 18 inches of concrete underlain by sandy clay, and clay and intermittent sand to the boring termination depths. Fill was encountered above the sandy clay in borings GB-5, GB-9, GB-10, GB-11 and GB-12. Several intervals had very limited recovery. Groundwater was encountered in each of the soil borings, except GB-4, at depths between 5 and 12 feet bgs.
- The PID readings ranged from 0.0 to 1.2 ppm. Oily odors were noted in soil borings GB-5 through GB-11 from approximately one foot to six feet. Oil droplets were noted in the groundwater from GB-7, and a sheen was noted on the groundwater in GB-12.
- The following VOCs were detected in the submitted soil samples at concentrations below the VAP GDGS, VAP LBSV, and BUSTR ALs: 1,2,4-trimethylbenzene (TMB), and xylenes.
- The following PNAs were detected in the submitted soil samples at concentrations above the VAP GDGS for residential land use and BUSTR ALs: benzo(a)anthracene (GB-1, GB-2, and GB-3), benzo(a)pyrene (GB-1, GB-2, and GB-3), benzo(b)fluoranthene (GB-1, GB-2, and GB-3), dibenz(a,h)anthracene (GB-1, GB-2, and GB-3), indeno(1,2,3-cd)pyrene (GB-1 and GB-3), and naphthalene (GB-1).
- The following PNAs were detected in the submitted soil samples at concentrations above the VAP GDGS for commercial/industrial land use: benzo(a)anthracene (GB-1), benzo(a)pyrene (GB-1, GB-2, and GB-3), benzo(b)fluoranthene (GB-1) and dibenz(a,h)anthracene (GB-1).
- Cyanide was detected in four of the submitted soil samples at concentrations below the VAP GDGS for Residential land use, Commercial/ Industrial land use, and Construction/Excavation Workers.
- TPH GRO was detected in soil samples GB-1, GB-2, and GB-3 at concentrations below the BUSTR AL for clay-type soils. TPH-DRO (GB-1, GB-3, GB-5, GB-6, GB-7, and GB-8) and ORO (GB-1, GB-2, GB-3, GB-5, GB-6, GB-7, and GB-8) were detected at concentrations below the BUSTR ALs for clay-type soils.
- The following PNAs were detected in the submitted groundwater samples at concentrations above the VAP GUPUS: benzo(a)anthracene (GB-5, GB-11, and GB-12), benzo(a)pyrene (GB-5 and GB-11), benzo(b)fluoranthene (GB-5, GB-11 and GB-12), indeno(1,2,3-cd)pyrene

(GB-5) and, naphthalene (GB-12). No other PNAs were detected at concentrations above the VAP GUPUS.

- Cyanide was detected in each groundwater sample for which it was analyzed at concentrations below the VAP GUPUS.

## **4.2 Conclusions and Recommendations**

PNAs were detected in soil at concentrations above the VAP GDGS. The highest concentrations of PNAs were identified on the western portion of the site in the vicinity of the former gasoline station in the four to eight foot sampling interval. Due to limited recovery in the borings, sampling intervals were increased to allow for a sufficient volume of sample to be collected. The detected concentrations are below the VAP GDGS for Construction/Excavation Workers. Oil staining is located on the eastern portion of the site in the vicinity of the quench furnaces, drums, and ASTs. Therefore, it is anticipated that shallow impacts from heavy end petroleum distillates are also present at the site. It does not appear that there is significant contamination related to VOCs based on field screening readings and the detected compounds.

Several PNAs in groundwater exceeded the VAP GUPUS. Potable water for the area is supplied by the City of Toledo Municipal System and the site falls within the Urban Setting Designation (USD) for the City of Toledo. A USD is a designated urban area where it has been demonstrated that groundwater is not used as a source of drinking water, connection to the municipal water system is required, and groundwater is not needed to meet the demands for public water supplies in the foreseeable future. Groundwater at the site and surrounding properties will not be utilized for drinking water. Therefore, the groundwater ingestion pathway is not complete. It is possible that the PNA concentrations in groundwater may be elevated due to sediment entrained in the sample. PNAs do not have VAP leach-based soil standards due to the nature of the compounds.

The drums, ASTs and remaining heat-treat equipment, such as the quench furnace, should be removed from the site and the contents (if any) properly characterized for disposal. The masonry block walls that remain at the site should be properly demolished and the identified ACM should be properly removed. It is anticipated that the surficial soil at the site has been impacted by asbestos due to the demolition techniques. Therefore, the surface should be scraped and disposed of with the identified ACM. It should be noted that asbestos may be present on or inside the abandoned vehicles at the site.

It is TTL's understanding that the Zepf Center wishes to purchase the site for redevelopment as an asphalt-paved parking lot. It is anticipated that the scraping of the soil to remove the asbestos would also remove some of the surficial PNA-impacted soil. The pit identified at the site will need to be cleaned and filled with clean material. The remainder of the PNA-impacted soil would be covered with asphalt, which could be utilized as an engineered barrier to avoid direct contact with the soils. Areas that are not paved will require a 2-foot thick layer of clean soil between the contaminated soil and the ground surface. Due to the presence of oil noted in the soil, a soil management plan should be prepared to properly handle and dispose of excess soil, if any, generated during the demolition of the remainder of the site building and construction of the parking lot.

## **TABLES**

**Table 1.0**  
**Soil Analytical Results**  
**Phase II ESA**  
**Former Heat Treating Building**  
**511 Southard Avenue**  
**Toledo, Ohio**  
**TTL Project No. 1673802**

Sample	GB-1	GB-2	GB-3	GB-5	GB-6	GB-7	GB-8	GB-9	GB-10	GB-11	GB-12	VAP Generic Direct Contact Standards for Residential Land Use	VAP Generic Direct Contact Standards for Commercial/Industrial Land Use	VAP Generic Direct Contact Standards for Construction/Excavation Worker	VAP Leach-Based Soil Values	BUSTR Action Level for Class 2 Soils (clay)
	(4 - 8)	(4 - 8)	(4 - 8)	(2 - 4)	(2 - 4)	(8 - 10)	(4 - 6)	(8 - 10)	(6 - 8)	(4 - 8)	(0 - 4)					
Date Sampled	6/14/2018	6/14/2018	6/14/2018	6/14/2018	6/14/2018	6/14/2018	6/14/2018	6/15/2018	6/15/2018	6/15/2018	6/15/2018					
<b>VOCs</b>																
1,2,4-trimethylbenzene	NT	NT	NT	NT	NT	NT	<b>8.89</b>	NT	NT	NT	NT	160,000	220,000	220,000	NV	5,890
Xylenes	<b>10.6</b>	< 7.37	<b>10.2</b>	NT	NT	NT	<b>11.5</b>	NT	NT	NT	NT	260,000	260,000	260,000	191,000	51,800
Other VOCs	BDL	BDL	BDL	NT	NT	NT	BDL	NT	NT	NT	NT	Various	Various	Various	Various	Various
<b>PNAs</b>																
Anthracene	<b>86,700</b>	<b>6,820</b>	<b>15,000</b>	< 7.12	<b>16.7</b>	< 7.07	NT	< 7.22	< 7.24	< 147	<b>57.7</b>	34,000,000	450,000,000	1,000,000,000	NV	NV
Acenaphthene	<b>38,900</b>	<b>2,110</b>	<b>4,660</b>	<b>49.0</b>	<b>8.44</b>	< 7.07	NT	<b>306</b>	<b>28.7</b>	<b>416</b>	<b>15.7</b>	6,900,000	90,000,000	780,000,000	NV	NV
Acenaphthylene	<b>3,050</b>	<b>1,840</b>	<b>2,610</b>	< 7.12	< 6.95	< 7.07	NT	< 7.22	< 7.24	<b>238</b>	<b>13.4</b>	* 3,500,000	* 56,000,000	* 440,000,000	NV	NV
Benzo(a)anthracene	<b>73,800</b>	<b>14,700</b>	<b>30,000</b>	<b>129</b>	<b>74.9</b>	<b>12.9</b>	NT	<b>88.9</b>	<b>9.39</b>	<b>517</b>	<b>194</b>	12,000	58,000	1,200,000	NV	12,000
Benzo(a)pyrene	<b>58,700</b>	<b>13,200</b>	<b>25,400</b>	<b>102</b>	<b>68.0</b>	<b>10.6</b>	NT	<b>56.7</b>	< 7.24	<b>400</b>	<b>253</b>	1,200	5,800	120,000	NV	1,200
Benzo(b)fluoranthene	<b>77,000</b>	<b>16,500</b>	<b>34,700</b>	<b>139</b>	<b>84.0</b>	<b>17.3</b>	NT	<b>60.8</b>	<b>7.52</b>	<b>579</b>	<b>358</b>	12,000	58,000	1,200,000	NV	12,000
Benzo(ghi)perylene	<b>27,200</b>	<b>7,020</b>	<b>13,000</b>	<b>72.9</b>	<b>38.9</b>	<b>7.86</b>	NT	<b>31.3</b>	< 7.24	<b>236</b>	<b>270</b>	* 1,800,000	* 28,000,000	* 220,000,000	NV	NV
Benzo(k)fluoranthene	<b>21,200</b>	<b>5,160</b>	<b>11,600</b>	<b>43.2</b>	<b>29.8</b>	< 7.07	NT	<b>26.4</b>	< 7.24	<b>150</b>	<b>123</b>	120,000	580,000	12,000,000	NV	120,000
Chrysene	<b>56,600</b>	<b>11,300</b>	<b>24,300</b>	<b>122</b>	<b>61.6</b>	<b>15.4</b>	NT	<b>86.3</b>	<b>13.3</b>	<b>624</b>	<b>16.8</b>	1,200,000	5,800,000	120,000,000	NV	1,200,000
Dibenz(a,h)anthracene	<b>8,050</b>	<b>2,000</b>	<b>5,040</b>	<b>18.9</b>	<b>11.9</b>	< 7.07	NT	<b>7.57</b>	< 7.24	<b>70.1</b>	<b>46.4</b>	1,200	5,800	120,000	NV	1,200
Fluoranthene	<b>246,000</b>	<b>38,100</b>	<b>75,200</b>	<b>381</b>	<b>129</b>	<b>59.9</b>	NT	<b>246</b>	<b>39.3</b>	<b>1,940</b>	<b>505</b>	4,600,000	60,000,000	160,000,000	NV	NV
Fluorene	<b>69,600</b>	<b>2,360</b>	<b>10,400</b>	<b>149</b>	<b>32.6</b>	<b>10.1</b>	NT	<b>254</b>	<b>44.4</b>	<b>1,730</b>	<b>14.6</b>	4,600,000	60,000,000	520,000,000	NV	NV
Indeno(1,2,3-cd)pyrene	<b>23,700</b>	<b>6,480</b>	<b>12,200</b>	<b>57.8</b>	<b>36.0</b>	< 7.07	NT	<b>24.3</b>	< 7.24	<b>207</b>	<b>176</b>	12,000	58,000	1,200,000	NV	12,000
Naphthalene	<b>91,900</b>	< 1,130	<b>2,050</b>	<b>47.9</b>	< 23.2	< 23.6	NT	<b>108</b>	< 24.1	<b>544</b>	<b>34.9</b>	90,000	450,000	560,000	NV	1,120
Phenanthrene	<b>317,000</b>	<b>28,300</b>	<b>43,300</b>	<b>741</b>	<b>44.8</b>	<b>33.8</b>	NT	<b>1,010</b>	<b>279</b>	<b>6,860</b>	<b>253</b>	* 18,000,000	* 280,000,000	* 2,200,000	NV	NV
Pyrene	<b>156,000</b>	<b>33,800</b>	<b>58,400</b>	<b>562</b>	<b>110</b>	<b>105</b>	NT	<b>329</b>	<b>94.7</b>	<b>418</b>	<b>345</b>	3,400,000	45,000,000	390,000,000	NV	NV
1-Methylnaphthalene	<b>24,300</b>	< 1,130	<b>1,770</b>	<b>66.3</b>	< 23.2	< 23.6	NT	<b>342</b>	<b>31.5</b>	<b>685</b>	<b>24.6</b>	310,000	1,500,000	31,000,000	NV	NV
2-Methylnaphthalene	<b>36,700</b>	< 1,130	< 1,280	<b>61.6</b>	< 23.2	< 23.6	NT	<b>385</b>	<b>31.6</b>	<b>833</b>	<b>38.4</b>	460,000	6,000,000	5,200,000	NV	NV
2-Chloronaphthalene	< 1,140	< 1,130	< 1,280	< 23.7	< 23.2	< 23.6	NT	< 24.1	< 24.1	< 24.6	< 23.4	13,000,000	330,000,000	1,000,000,000	NV	NV
<b>Cyanide</b>																
Cyanide	NT	NT	<b>2,000</b>	<b>466</b>	<b>445</b>	< 295	< 303	< 301	< 302	< 307	<b>1,030 J3 J5</b>	1,000,000,000	1,000,000,000	1,000,000,000	NV	NV
<b>TPH</b>																
GRO (C <sub>6</sub> -C <sub>10</sub> )	<b>5,680</b>	<b>4,710</b>	<b>14,500</b>	NT	NT	NT	< 3,030	NT	NT	NT	NT	NV	NV	NV	NV	5,000,000
DRO (C <sub>10</sub> -C <sub>20</sub> )	<b>3,310,000</b>	< 454,000	<b>1,720,000</b>	<b>1,470,000</b>	<b>15,000</b>	<b>242,000</b>	<b>1,090,000</b>	NT	NT	NT	NT	NV	NV	NV	NV	10,000,000
ORO (C <sub>20</sub> -C <sub>34</sub> )	<b>7,090,000</b>	<b>1,740,000</b>	<b>4,440,000</b>	<b>1,410,000</b>	<b>35,100</b>	<b>542,000</b>	<b>3,100,000</b>	NT	NT	NT	NT	NV	NV	NV	NV	20,000,000

**NOTES:**

1. Concentrations reported in micrograms/kilograms ( $\mu\text{g}/\text{kg}$ ), which is approximately equivalent to parts per billion (ppb).

2. BDL indicates concentrations below method detection limits (MDLs).

3. Only analytes detected are listed in the table above.

4. NV indicates no Ohio Environmental Protection Agency (OEPA) VAP Generic Direct Contact Soil Standard, Leach-Based Soil Value, or BUSTR value.

5. NT indicates sample not tested for this analyte.

6. Gray shading indicates a concentration above one or more action level

7. \* indicates compared to VAP GDGS Supplemental Standard.

8. J3 indicates the associated batch QC was outside the established quality control range for precision.

9. J5 indicates the sample matrix interfered with the ability to make any accurate determination; spike value is high.

**Table 1.1**  
**Soil Quality Control Analytical Results**  
**Phase II ESA**  
**Former Heat Treating Building**  
**511 Southard Avenue**  
**Toledo, Ohio**  
**TTL Project No. 1673802**

Sample	GB-7	DUP-1	Field Dup Relative % Difference	GB-8	DUP-2	Field Dup Relative % Difference	MS	MSD	MS % Recovery	MSD % Recovery	MS/MSD Relative % Difference
	8 - 12'	8 - 12'	% Difference	4 - 6'	4 - 6'	% Difference					
<b>VOCs</b>											
Acetone	NT	NT	N/A	BDL J3	BDL J3	0.00	NT	NT	N/A	N/A	N/A
Acrylonitrile	NT	NT	N/A	BDL J3	BDL J3	0.00	NT	NT	N/A	N/A	N/A
Benzene	NT	NT	N/A	BDL	BDL	0.00	53.5	99.4	42.1	78.8	60.1 J3
2-Butanone	NT	NT	N/A	BDL J3	BDL J3	0.00	NT	NT	N/A	N/A	N/A
Bromobenzene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Bromodichloromethane	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Bromoform	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Bromomethane	NT	NT	N/A	BDL J3	BDL J3	0.00	NT	NT	N/A	N/A	N/A
n-butylbenzene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
sec-butylbenzene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
tert-butylbenzene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Carbon tetrachloride	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Chlorobenzene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Chlorodibromomethane	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Chloroethane	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Chloroform	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Chloromethane	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
2-chlorotoluene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
4-chlorotoluene	NT	NT	N/A	BDL J4	BDL J4	0.00	NT	NT	N/A	N/A	N/A
1,2-dibromo-3-chloropropane	NT	NT	N/A	BDL J3	BDL J3	0.00	NT	NT	N/A	N/A	N/A
1,2-dibromoethane	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Dibromomethane	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
1,2-dichlorobenzene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
1,3-dichlorobenzene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
1,4-dichlorobenzene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Dichlorodifluoromethane	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
1,1-dichloroethane	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
1,2-dichloroethane	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
1,1-dichloroethene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
cis-1,2-Dichloroethene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
trans-1,2-Dichloroethene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
1,2-dichloropropane	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
1,1-dichloropropene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
1,3-dichloropropene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
cis-1,3-dichloropropene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
trans-1,3-dichloropropene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
2,2-dichloropropane	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Di-isopropyl ether	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Ethylbenzene	NT	NT	N/A	BDL	BDL	0.00	52.6	103	41.1	81.1	64.5 J3
Hexachloro-1,4-butadiene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
n-Hexane	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Isopropylbenzene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
p-isopropyltoluene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Methylene chloride	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
4-methyl-2-pentanone (MIBK)	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Methyl tert-butyl ether	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Naphthalene	NT	NT	N/A	BDL J3	BDL J3	0.00	NT	NT	N/A	N/A	N/A
n-Propylbenzene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Styrene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
1,1,1,2-tetrachloroethane	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
1,1,2,2-tetrachloroethane	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Tetrachloroethene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Toluene	NT	NT	N/A	BDL	BDL	0.00	56.9	111	44.3	87.8	64.6 J3
1,2,3-trichlorobenzene	NT	NT	N/A	BDL J3	BDL J3	0.00	NT	NT	N/A	N/A	N/A
1,2,4-trichlorobenzene	NT	NT	N/A	BDL J3	BDL J3	0.00	NT	NT	N/A	N/A	N/A
1,1,1-trichloroethane	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
1,1,2-trichloroethane	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Trichloroethene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Trichlorofluoromethane	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
1,2,3-trichloropropane	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
1,2,4-trimethylbenzene	NT	NT	N/A	8.89	20.9	80.63	NT	NT	N/A	N/A	N/A
1,3,5-Trimethylbenzene	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Vinyl chloride	NT	NT	N/A	BDL	BDL	0.00	NT	NT	N/A	N/A	N/A
Xylenes	NT	NT	N/A	11.5	17.0	38.60	151	277	38.8	72.5	59.1 J3
<b>PNAs</b>											
Anthracene	BDL	BDL	0.00	NT	NT	N/A	62.6	68.2	78.2	85.2	8.55
Acenaphthene	BDL	BDL	0.00	NT	NT	N/A	58.9	64.4	73.7	80.5	8.87
Acenaphthylene	BDL	BDL	0.00	NT	NT	N/A	58.3	63.5	72.8	79.4	8.60
Benzo(a)anthracene	12.9	< 7.06	114.06	NT	NT	N/A	56.4	60.9	70.5	76.1	7.63
Benzo(a)pyrene	10.6	< 7.06	100.07	NT	NT	N/A	60.4	64.6	75.4	80.8	6.80
Benzo(b)fluoranthene	17.3	< 7.06	132.21	NT	NT	N/A	57.8	62.5	72.3	78.1	7.69
Benzo(ghi)perylene	7.86	< 7.06	76.03	NT	NT	N/A	40.5	36.7	50.7	45.8	10.0
Benzo(k)fluoranthene	BDL	BDL	0.00	NT	NT	N/A	64.4	73.0	80.4	91.2	12.5
2-Chloronaphthalene	BDL	BDL	0.00	NT	NT	N/A	59.1	65.3	73.9	81.7	10.0
Chrysene	15.4	< 7.06	125.41	NT	NT	N/A	60.6	73.0	75.8	81.8	7.62
Dibenzo(a,h)anthracene	BDL</										

**Table 2.0**  
**Groundwater Analytical Results**  
**Phase II ESA**  
**Former Heat Treating Building**  
**511 Southard Avenue**  
**Toledo, Ohio**  
**TTL Project No. 1673802**

Sample	GB-5W	GB-6W	GB-9W	GB-11W	GB-12W	VAP Generic Unrestricted Potable Use Standards
Date Sampled	6/14/2018	6/14/2018	6/15/2018	6/15/2018	6/15/2018	
<b>PNAs</b>						
Anthracene	<b>9.11</b>	<b>0.353</b>	<b>0.244</b>	<b>3.94</b>	<b>5.70</b>	1,300
Acenaphthene	<b>5.45</b>	<b>0.273</b>	<b>0.462</b>	<b>2.35</b>	<b>2.67</b>	400
Acenaphthylene	<b>1.76</b>	< 0.0500	< 0.0500	<b>1.56</b>	<b>2.27</b>	* 950
Benzo(a)anthracene	<b>6.15</b>	<b>0.0779</b>	< 0.0500	<b>1.03</b>	<b>1.24</b>	0.92
Benzo(a)pyrene	<b>3.29</b>	<b>0.0610</b>	< 0.0500	<b>0.709</b>	< 0.750	0.200
Benzo(b)fluoranthene	<b>4.68</b>	<b>0.0958</b>	< 0.0500	<b>1.17</b>	<b>1.04</b>	0.92
Benzo(ghi)perylene	<b>4.29</b>	< 0.0500	< 0.0500	< 0.515	< 0.750	* 470
Benzo(k)fluoranthene	<b>1.52</b>	< 0.0500	< 0.0500	< 0.515	< 0.750	9.2
Chrysene	<b>8.82</b>	<b>0.112</b>	< 0.0500	<b>2.32</b>	<b>1.73</b>	92
Dibenz(a,h)anthracene	< 1.00	< 0.0500	< 0.0500	< 0.515	< 0.750	0.092
Fluoranthene	<b>13.2</b>	<b>0.333</b>	<b>0.174</b>	<b>5.41</b>	<b>6.91</b>	630
Fluorene	<b>12.5</b>	<b>0.703</b>	<b>0.448</b>	<b>5.56</b>	<b>7.78</b>	220
Indeno(1,2,3-cd)pyrene	<b>1.56</b>	< 0.0500	< 0.0500	< 0.515	< 0.750	0.92
Naphthalene	< 5.00	< 0.250	<b>0.345</b>	< 2.58	<b>3.80 B</b>	1.4
Phenanthrene	< 1.00	<b>0.171</b>	<b>1.60</b>	<b>23.4</b>	<b>39.4</b>	* 4,700
Pyrene	<b>1.43</b>	<b>0.644</b>	<b>0.150</b>	<b>9.05</b>	<b>11.6</b>	87
1-Methylnaphthalene	< 5.00	< 0.250	<b>1.17</b>	<b>4.39</b>	<b>4.53</b>	9.7
2-Methylnaphthalene	< 5.00	< 0.250	<b>0.485</b>	<b>3.94</b>	<b>4.33</b>	27
2-Chloronaphthalene	< 5.00	< 0.250	< 0.250	< 2.58	< 3.75	550
<b>Cyanide</b>						
Cyanide	<b>91.7</b>	<b>10.4 J3</b>	<b>20.5</b>	<b>11.8</b>	NT	200

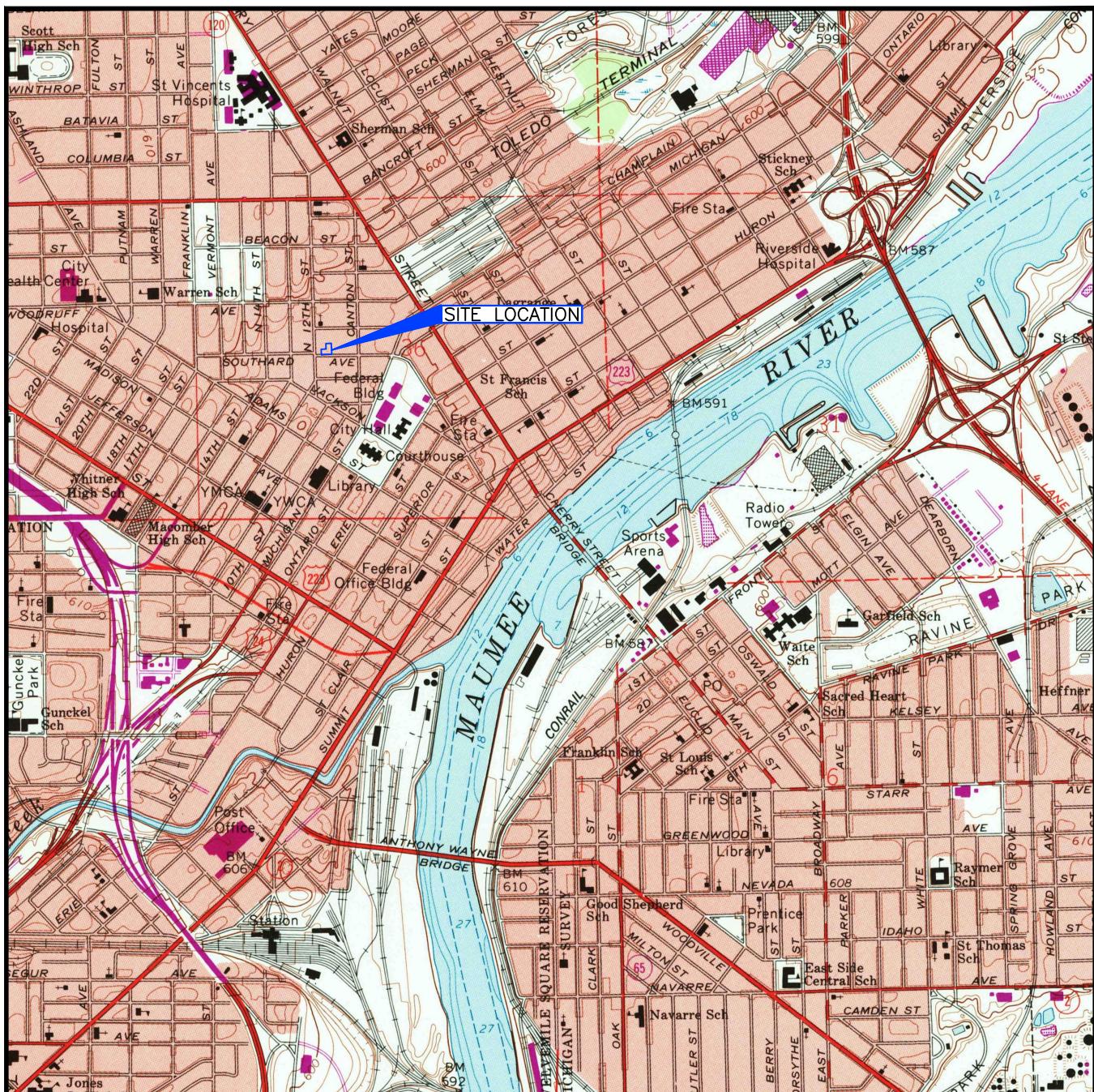
NOTES:

- Concentrations reported in micrograms/liter ( $\mu\text{g/l}$ ), which is approximately equivalent to parts per billion (ppb).
- NT indicates sample not tested for this analyte.
- NV indicates no OEPA VAP GUPUS.
- Gray shading indicates a concentration above OEPA VAP GUPUS.
- \* indicates compared to VAP GUPUS Supplemental Standard.
- J3 indicates the associated batch QC was outside the established quality control range for precision.
- B indicates the analyte found in associated blank.

**Table 2.1**  
**Groundwater Quality Control Analytical Results**  
**Phase II ESA**  
**Former Heat Treating Building**  
**511 Southard Avenue**  
**Toledo, Ohio**  
**TTL Project No. 1673802**

Sample	GB-5W	Water Duplicate	Field Dup Relative % Difference	MS	MSD	MS % Recovery	MSD % Recovery	MS/MSD Relative % Difference
<b>PNAs</b>								
Anthracene	<b>9.11</b>	<b>4.28</b>	<b>72.1</b>	2.34	2.48	99.4	106.0	5.90
Acenaphthene	<b>5.45</b>	<b>2.47</b>	<b>75.3</b>	2.33	2.34	103.0	104.0	0.743
Acenaphthylene	<b>1.76</b>	< 1.00	<b>111.5</b>	2.15	2.14	108.0	107.0	0.61
Benzo(a)anthracene	<b>6.15</b>	<b>2.55</b>	<b>82.8</b>	1.96	2.07	94.2	99.7	5.40
Benzo(a)pyrene	<b>3.29</b>	<b>1.42</b>	<b>79.4</b>	1.90	2.08	91.8	101.0	9.20
Benzo(b)fluoranthene	<b>4.68</b>	<b>2.04</b>	<b>78.6</b>	1.88	2.10	89.3	100.0	11.00
Benzo(ghi)perylene	<b>4.29</b>	<b>1.94</b>	<b>75.4</b>	1.90	2.09	92.6	102.0	9.57
Benzo(k)fluoranthene	<b>1.52</b>	< 1.00	<b>101.0</b>	1.95	1.94	97.3	97.2	0.08
Chrysene	<b>8.82</b>	<b>1.96</b>	<b>127.3</b>	2.09	2.04	104.0	102.0	2.21
Dibenz(a,h)anthracene	< 1.00	< 1.00	<b>0.00</b>	1.99	2.09	94.1	99.0	4.80
Fluoranthene	<b>13.2</b>	<b>5.82</b>	<b>77.6</b>	1.83	2.02	90.5	100.0	9.94
Fluorene	<b>12.5</b>	<b>5.56</b>	<b>76.9</b>	2.16	2.32	91.5	99.5	7.1
Indeno(1,2,3-cd)pyrene	<b>1.56</b>	< 1.00	<b>102.9</b>	2.71	2.74	100.0	102.0	1.25
Naphthalene	< 5.00	< 5.00	<b>0.00</b>	1.82	2.02	89.1	99.1	10.50
Phenanthrene	< 1.00	< 1.00	<b>0.00</b>	2.02	1.98	97.5	95.5	2.04
Pyrene	<b>1.43</b>	<b>5.95</b>	<b>122.5</b>	2.13	1.88	92.7	91.1	1.69
1-Methylnaphthalene	< 5.00	< 5.00	<b>0.00</b>	2.02	1.96	95.6	92.6	3.06
2-Methylnaphthalene	< 5.00	< 5.00	<b>0.00</b>	2.13	2.16	97.9	99.4	1.5
2-Chloronaphthalene	< 5.00	< 5.00	<b>0.00</b>	2.40	2.67	87.8	101.0	10.7
<b>Cyanide</b>								
Cyanide	<b>91.7</b>	< 50.0	<b>114.3</b>	973	950	88.1	85.8	2.39

## **FIGURES**



**REFERENCE**  
USGS 7.5 MIN TOPOGRAPHIC QUADRANGLE  
TOLEDO, OHIO  
DATED 1965 PHOTOREVISED 1980  
SCALE 1 : 24000



APPROXIMATE SCALE - FEET  
0 2,000 4,000

**FIGURE 1.0**  
**SITE LOCATION MAP**  
PHASE II ENVIRONMENTAL SITE ASSESSMENT  
FORMER HEAT TREATING FACILITY  
511 SOUTHARD AVENUE  
TOLEDO, OHIO

PREPARED FOR  
**ZEPF CENTER**  
**TOLEDO, OHIO**

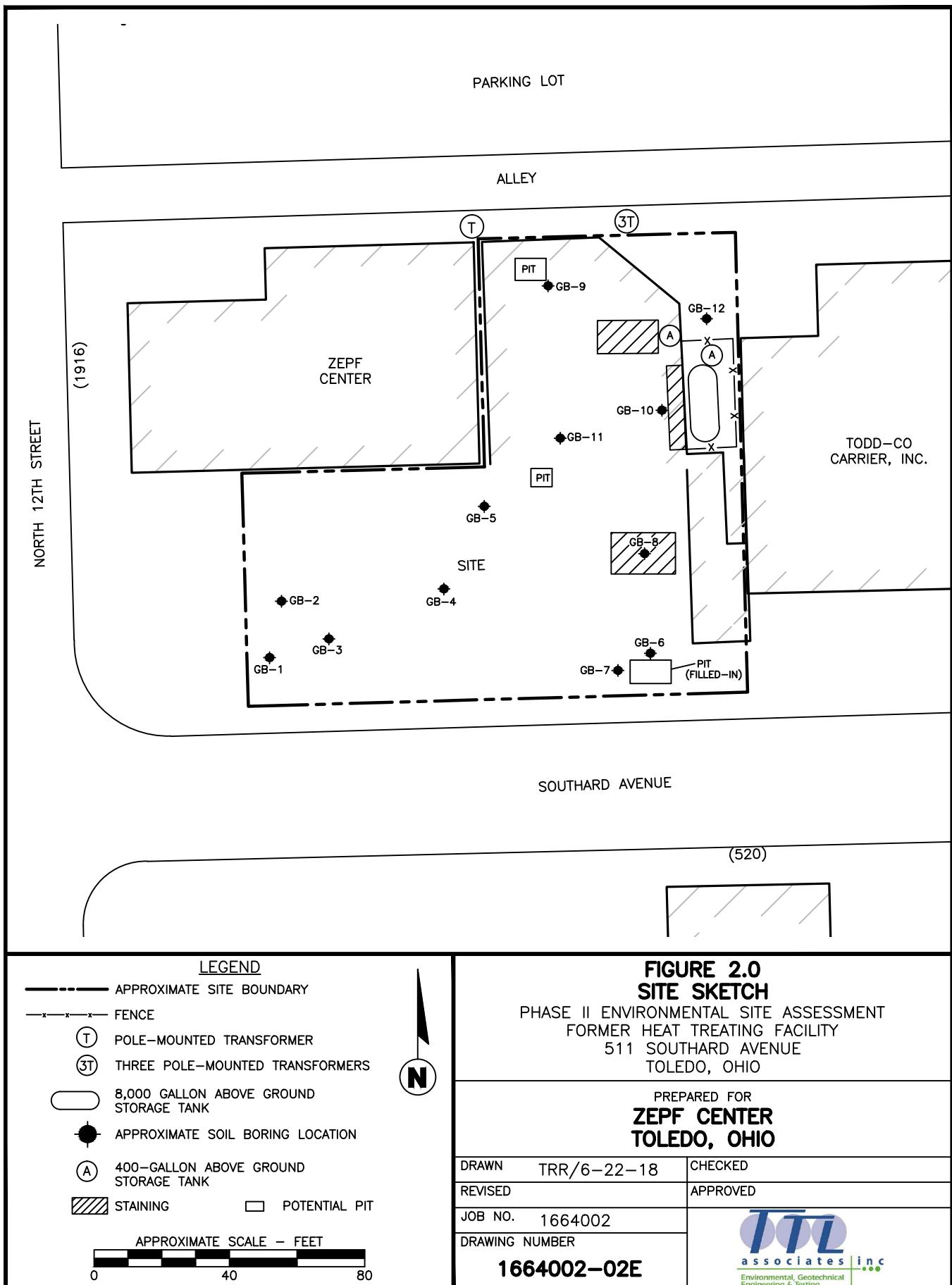
DRAWN	TRR/6-22-18	CHECKED
REVISED		APPROVED

JOB NO. 1664002

DRAWING NUMBER

**1664002-01E**

**ITL**  
associates inc.  
Environmental, Geotechnical  
Engineering & Testing



**APPENDIX A**  
**SOIL BORING LOGS**



TTL Associates, Inc.  
1915 N. 12th Street  
Toledo, Ohio 43604  
Telephone: (419) 324-2222

# BORING NUMBER GB-1

PAGE 1 OF 1

CLIENT Zepf Center

PROJECT NAME Phase II ESA

PROJECT NUMBER 1664002

PROJECT LOCATION 511 Southard Avenue, Toledo, Ohio

DRILLING CONTRACTOR TTL Associates RM

RIG NO. GROUND ELEVATION

DRILLING METHOD Geoprobe

GROUND WATER LEVELS:

DATE STARTED 6/14/18 COMPLETED 6/14/18

▽ AT TIME OF DRILLING 6.0 ft

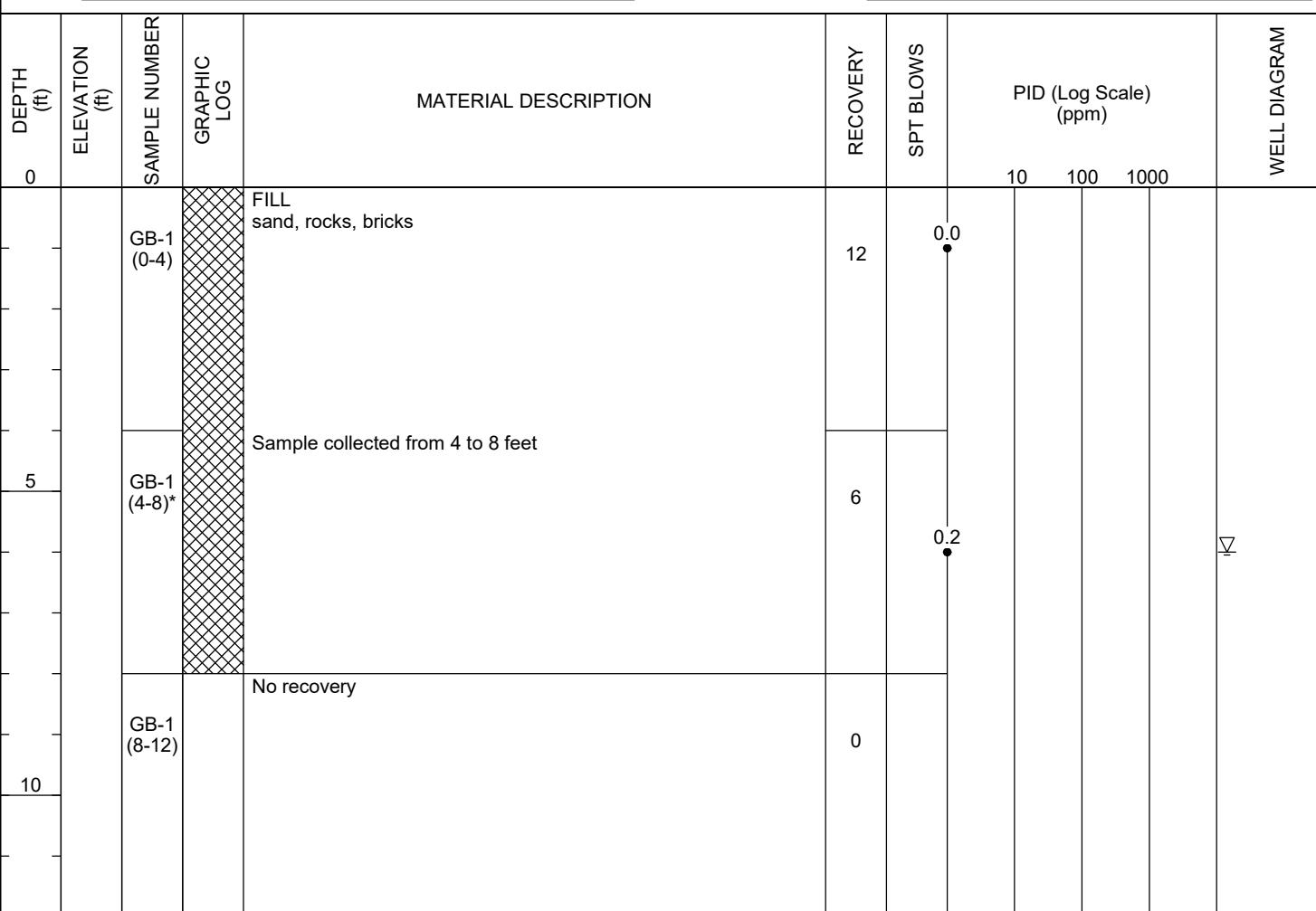
LOGGED BY PDC

CHECKED BY ---

AT END OF DRILLING ---

NOTES ---

AFTER DRILLING ---



Bottom of hole at 12.0 feet.

\*Sample submitted for laboratory analysis.



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1915 N. 12th Street  
Toledo, Ohio 43604  
Telephone: (419) 324-2222

# BORING NUMBER GB-2

PAGE 1 OF 1

CLIENT Zepf Center

PROJECT NAME Phase II ESA

PROJECT NUMBER 1664002

PROJECT LOCATION 511 Southard Avenue, Toledo, Ohio

DRILLING CONTRACTOR TTL Associates RM

RIG NO. GROUND ELEVATION

DRILLING METHOD Geoprobe

GROUND WATER LEVELS:

DATE STARTED 6/14/18 COMPLETED 6/14/18

▽ AT TIME OF DRILLING 6.0 ft

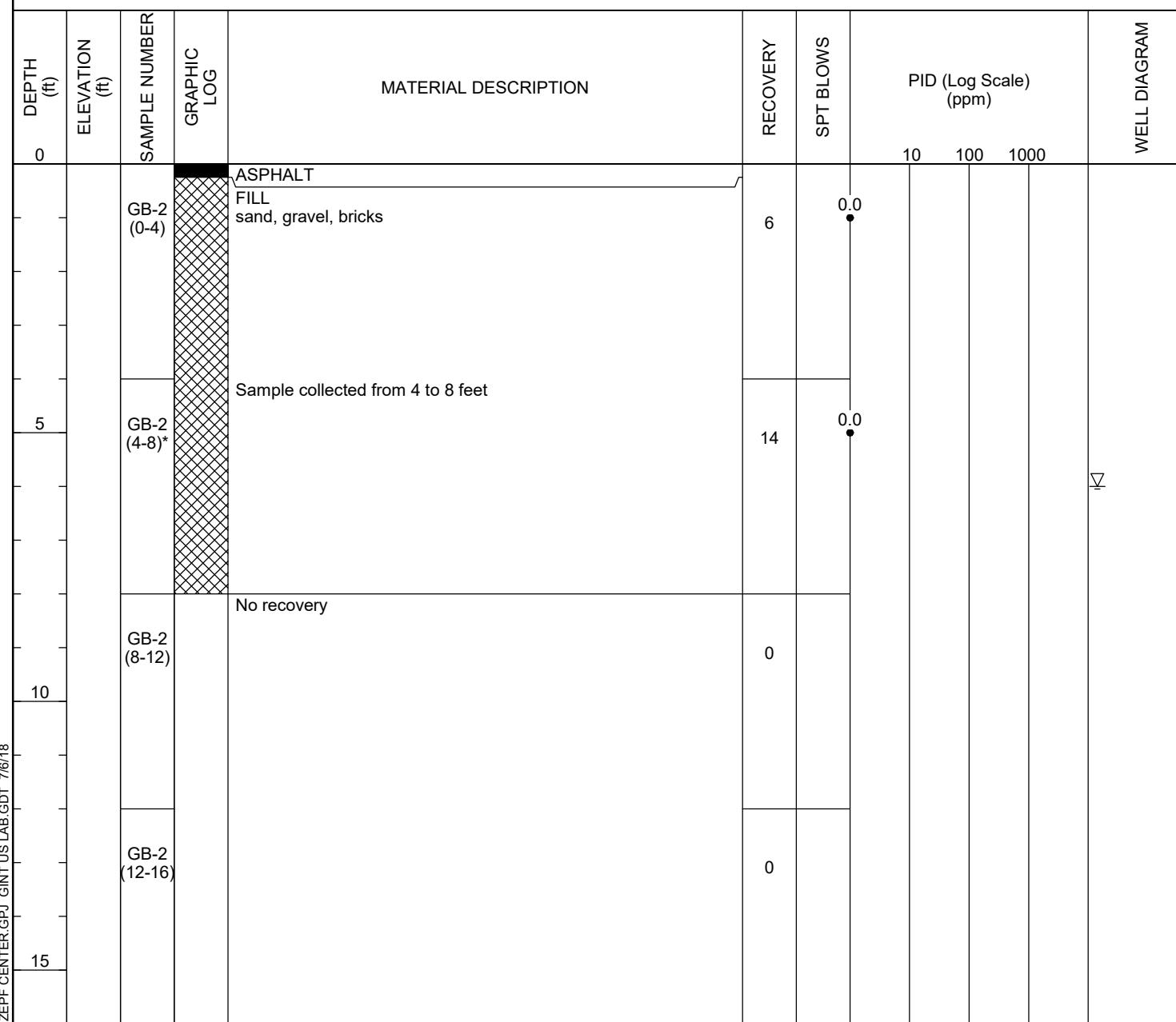
LOGGED BY PDC

CHECKED BY

AT END OF DRILLING ---

NOTES

AFTER DRILLING ---



Bottom of hole at 16.0 feet.

\*Sample submitted for laboratory analysis.



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1915 N. 12th Street  
Toledo, Ohio 43604  
Telephone: (419) 324-2222

# BORING NUMBER GB-3

PAGE 1 OF 1

CLIENT Zepf Center

PROJECT NAME Phase II ESA

PROJECT NUMBER 1664002

PROJECT LOCATION 511 Southard Avenue, Toledo, Ohio

DRILLING CONTRACTOR TTL Associates RM

RIG NO. GROUND ELEVATION

DRILLING METHOD Geoprobe

GROUND WATER LEVELS:

DATE STARTED 6/14/18 COMPLETED 6/14/18

▽ AT TIME OF DRILLING 11.5 ft

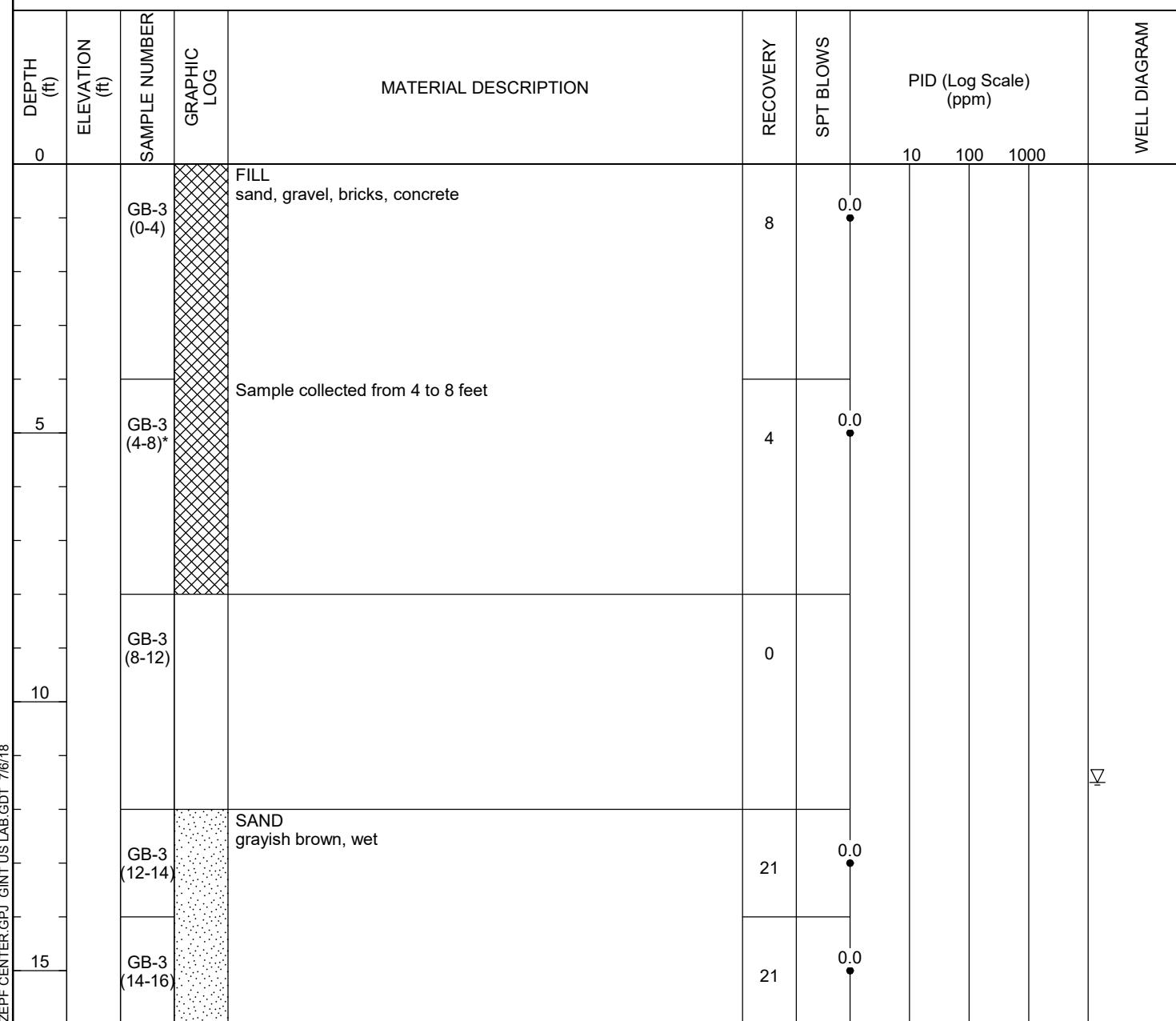
LOGGED BY PDC

CHECKED BY

AT END OF DRILLING ---

NOTES

AFTER DRILLING ---



Bottom of hole at 16.0 feet.

\*Sample submitted for laboratory analysis.



TTL Associates, Inc.  
1915 N. 12th Street  
Toledo, Ohio 43604  
Telephone: (419) 324-2222

# BORING NUMBER GB-4

PAGE 1 OF 1

CLIENT Zepf Center PROJECT NAME Phase II ESA

PROJECT NUMBER 1664002 PROJECT LOCATION 511 Southard Avenue, Toledo, Ohio

DRILLING CONTRACTOR TTL Associates RM RIG NO. \_\_\_\_\_ GROUND ELEVATION \_\_\_\_\_

DRILLING METHOD Geoprobe GROUND WATER LEVELS:

DATE STARTED 6/14/18 COMPLETED 6/14/18 AT TIME OF DRILLING ---

LOGGED BY PDC CHECKED BY \_\_\_\_\_ AT END OF DRILLING ---

NOTES AFTER DRILLING ---

DEPTH (ft)	ELEVATION (ft)	SAMPLE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	RECOVERY	SPT BLOWS	PID (Log Scale) (ppm)			WELL DIAGRAM
0				CONCRETE	0		10	100	1000	

Bottom of hole at 2.5 feet.

\*Sample submitted for laboratory analysis.



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Toledo, Ohio 43604  
Telephone: (419) 324-2222

# BORING NUMBER GB-5

PAGE 1 OF 1

CLIENT Zepf Center

PROJECT NAME Phase II ESA

PROJECT NUMBER 1664002

PROJECT LOCATION 511 Southard Avenue, Toledo, Ohio

DRILLING CONTRACTOR TTL Associates RM

RIG NO. GROUND ELEVATION

DRILLING METHOD Geoprobe

GROUND WATER LEVELS:

DATE STARTED 6/14/18 COMPLETED 6/14/18

▽ AT TIME OF DRILLING 6.0 ft

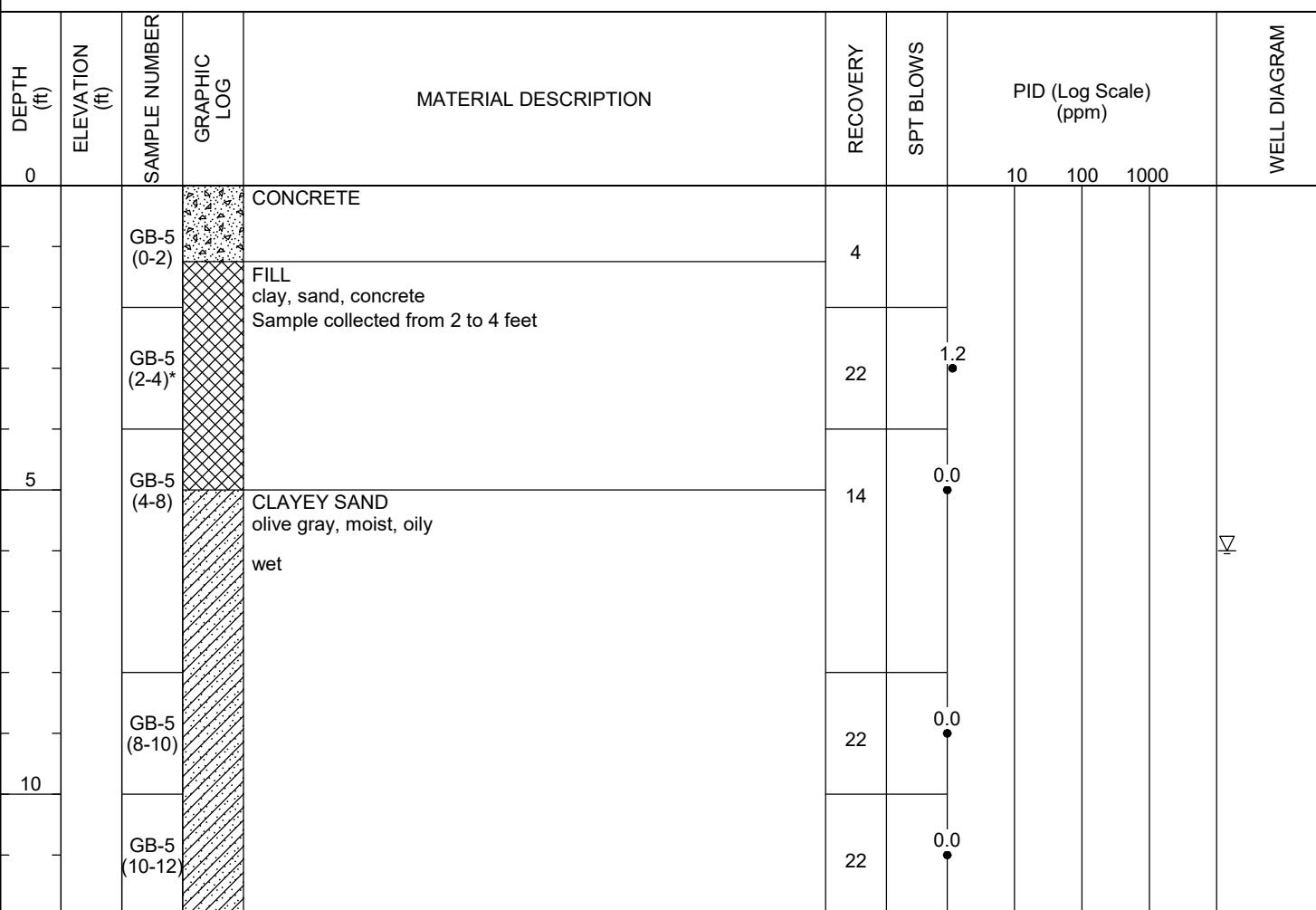
LOGGED BY PDC

CHECKED BY

AT END OF DRILLING ---

NOTES

AFTER DRILLING ---



Bottom of hole at 12.0 feet.

\*Sample submitted for laboratory analysis.



TTL Associates, Inc.  
1915 N. 12th Street  
Toledo, Ohio 43604  
Telephone: (419) 324-2222

# BORING NUMBER GB-6

PAGE 1 OF 1

CLIENT Zepf Center

PROJECT NAME Phase II ESA

PROJECT NUMBER 1664002

PROJECT LOCATION 511 Southard Avenue, Toledo, Ohio

DRILLING CONTRACTOR TTL Associates RM

RIG NO. GROUND ELEVATION

DRILLING METHOD Geoprobe

GROUND WATER LEVELS:

DATE STARTED 6/14/18 COMPLETED 6/14/18

▽ AT TIME OF DRILLING 5.0 ft

LOGGED BY PDC

CHECKED BY

AT END OF DRILLING ---

NOTES

AFTER DRILLING ---

DEPTH (ft)	ELEVATION (ft)	SAMPLE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	RECOVERY	SPT BLOWS	PID (Log Scale) (ppm)			WELL DIAGRAM
							10	100	1000	
0		GB-6 (0-2)		CONCRETE	0					
		GB-6 (2-4)*		CLAYEY SAND brown, moist, oily Sample collected from 2 to 4 feet	24		0.0			
5		GB-6 (4-8)		wet	24		0.0			▽

Bottom of hole at 8.0 feet.

\*Sample submitted for laboratory analysis.



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1915 N. 12th Street  
Toledo, Ohio 43604  
Telephone: (419) 324-2222

# BORING NUMBER GB-7

PAGE 1 OF 1

CLIENT Zepf Center

PROJECT NAME Phase II ESA

PROJECT NUMBER 1664002

PROJECT LOCATION 511 Southard Avenue, Toledo, Ohio

DRILLING CONTRACTOR TTL Associates RM

RIG NO. GROUND ELEVATION

DRILLING METHOD Geoprobe

GROUND WATER LEVELS:

DATE STARTED 6/14/18 COMPLETED 6/14/18

▽ AT TIME OF DRILLING 9.0 ft

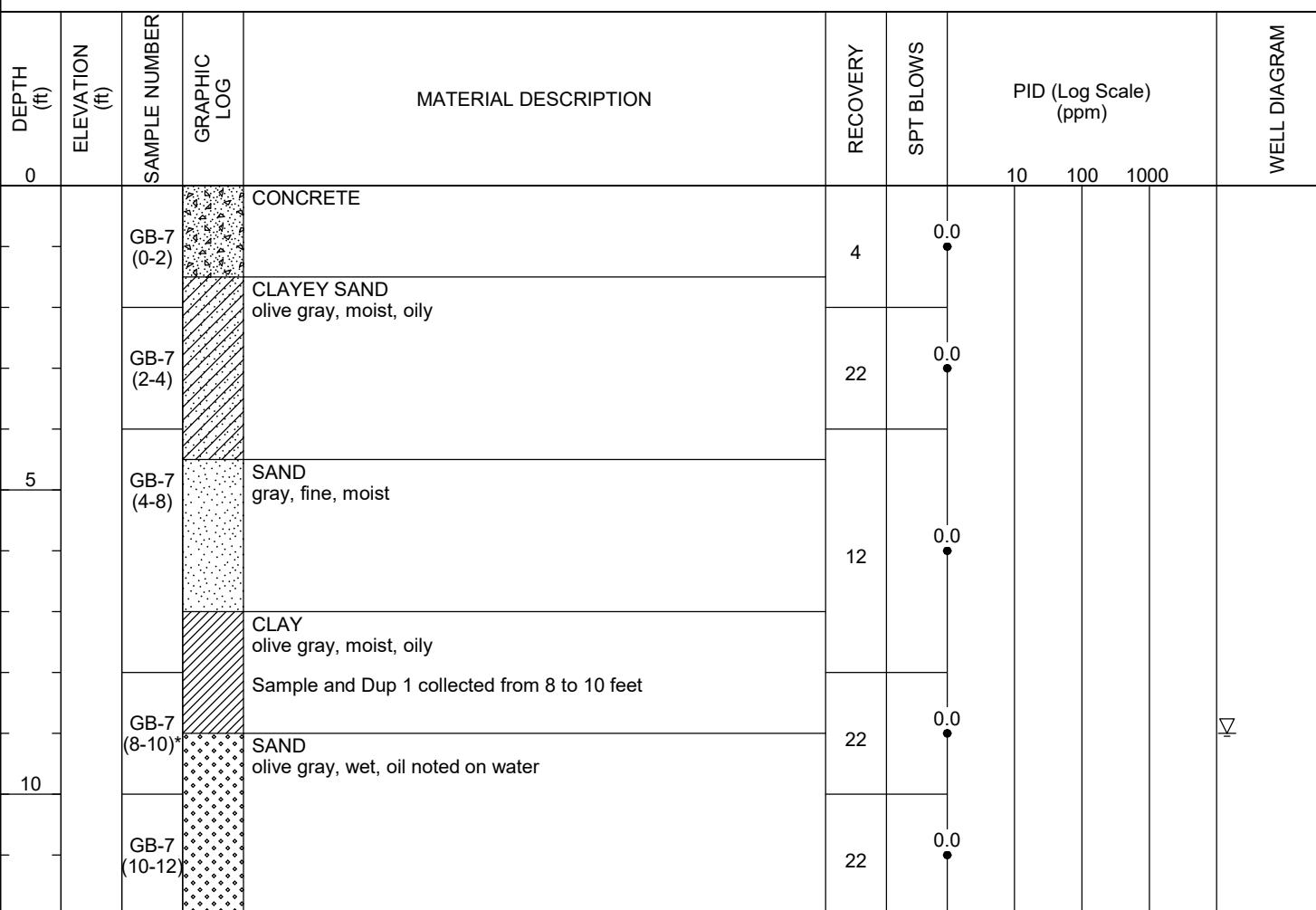
LOGGED BY PDC

CHECKED BY

AT END OF DRILLING ---

NOTES

AFTER DRILLING ---



Bottom of hole at 12.0 feet.

\*Sample submitted for laboratory analysis.



TTL Associates, Inc.  
1915 N. 12th Street  
Toledo, Ohio 43604  
Telephone: (419) 324-2222

# BORING NUMBER GB-8

PAGE 1 OF 1

CLIENT Zepf Center

PROJECT NAME Phase II ESA

PROJECT NUMBER 1664002

PROJECT LOCATION 511 Southard Avenue, Toledo, Ohio

DRILLING CONTRACTOR TTL Associates RM

RIG NO. GROUND ELEVATION

DRILLING METHOD Geoprobe

GROUND WATER LEVELS:

DATE STARTED 6/14/18 COMPLETED 6/14/18

▽ AT TIME OF DRILLING 7.0 ft

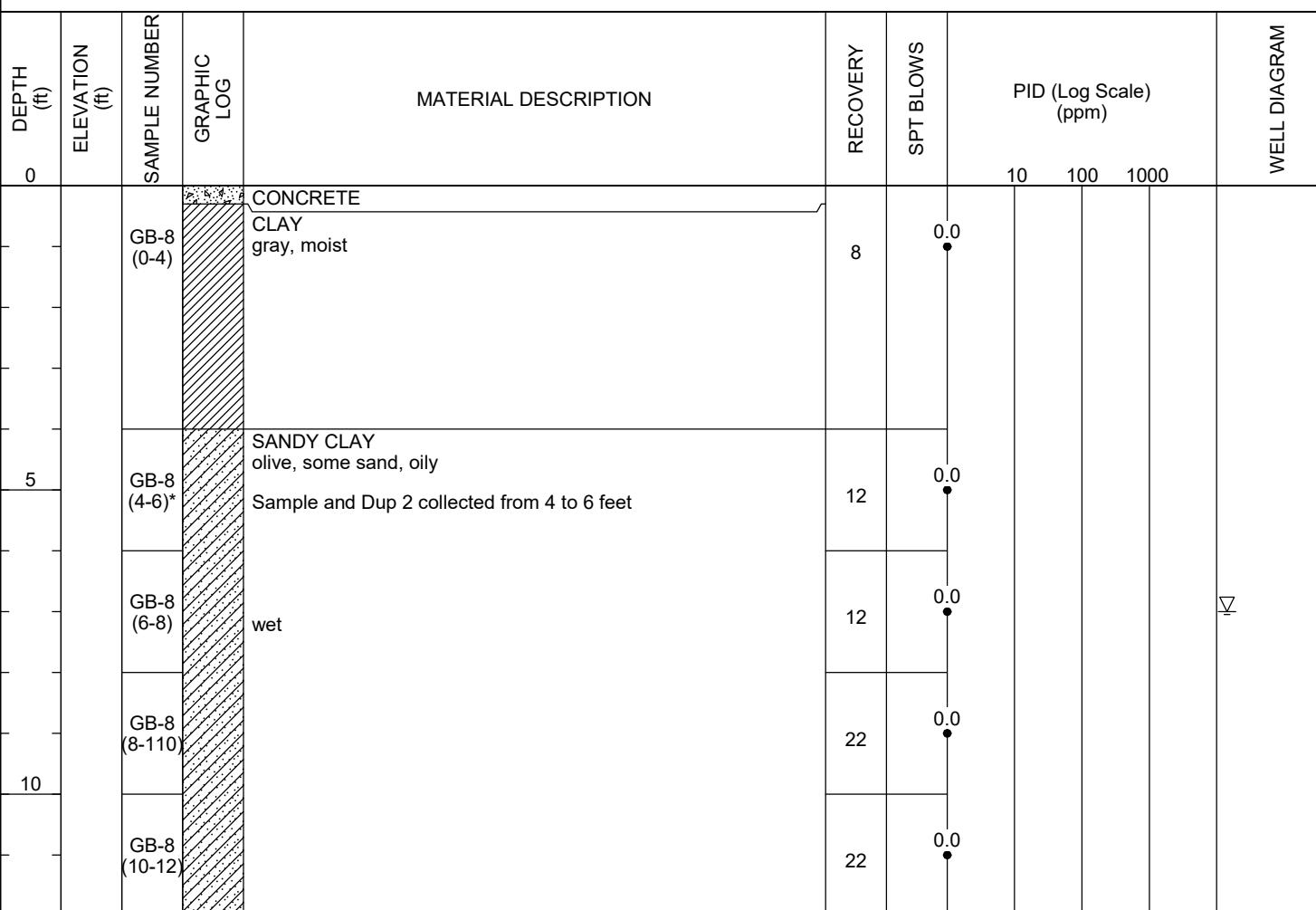
LOGGED BY PDC

CHECKED BY

AT END OF DRILLING ---

NOTES

AFTER DRILLING ---



Bottom of hole at 12.0 feet.

\*Sample submitted for laboratory analysis.



TTL Associates, Inc.  
1915 N. 12th Street  
Toledo, Ohio 43604  
Telephone: (419) 324-2222

# BORING NUMBER GB-9

PAGE 1 OF 1

CLIENT Zepf Center

PROJECT NAME Phase II ESA

PROJECT NUMBER 1664002

PROJECT LOCATION 511 Southard Avenue, Toledo, Ohio

DRILLING CONTRACTOR TTL Associates RM

RIG NO. GROUND ELEVATION

DRILLING METHOD Geoprobe

GROUND WATER LEVELS:

DATE STARTED 6/15/18 COMPLETED 6/15/18

▽ AT TIME OF DRILLING 11.0 ft

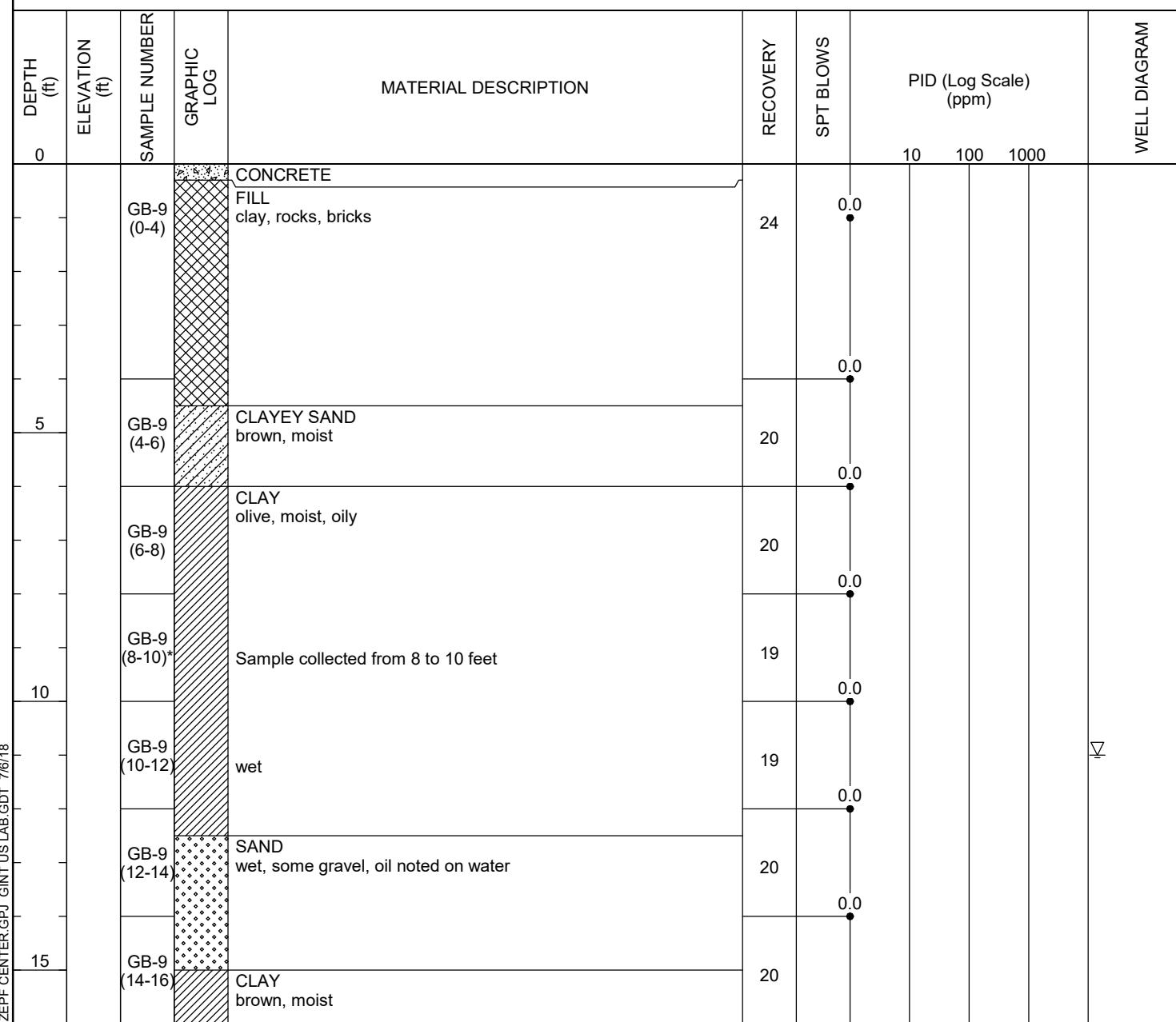
LOGGED BY PDC

CHECKED BY

AT END OF DRILLING ---

NOTES

AFTER DRILLING ---



Bottom of hole at 16.0 feet.

\*Sample submitted for laboratory analysis.



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# BORING NUMBER GB-10

PAGE 1 OF 1

CLIENT Zepf Center

PROJECT NAME Phase II ESA

PROJECT NUMBER 1664002

PROJECT LOCATION 511 Southard Avenue, Toledo, Ohio

DRILLING CONTRACTOR TTL Associates RM

RIG NO. GROUND ELEVATION

DRILLING METHOD Geoprobe

GROUND WATER LEVELS:

DATE STARTED 6/15/18 COMPLETED 6/15/18

▽ AT TIME OF DRILLING 9.0 ft

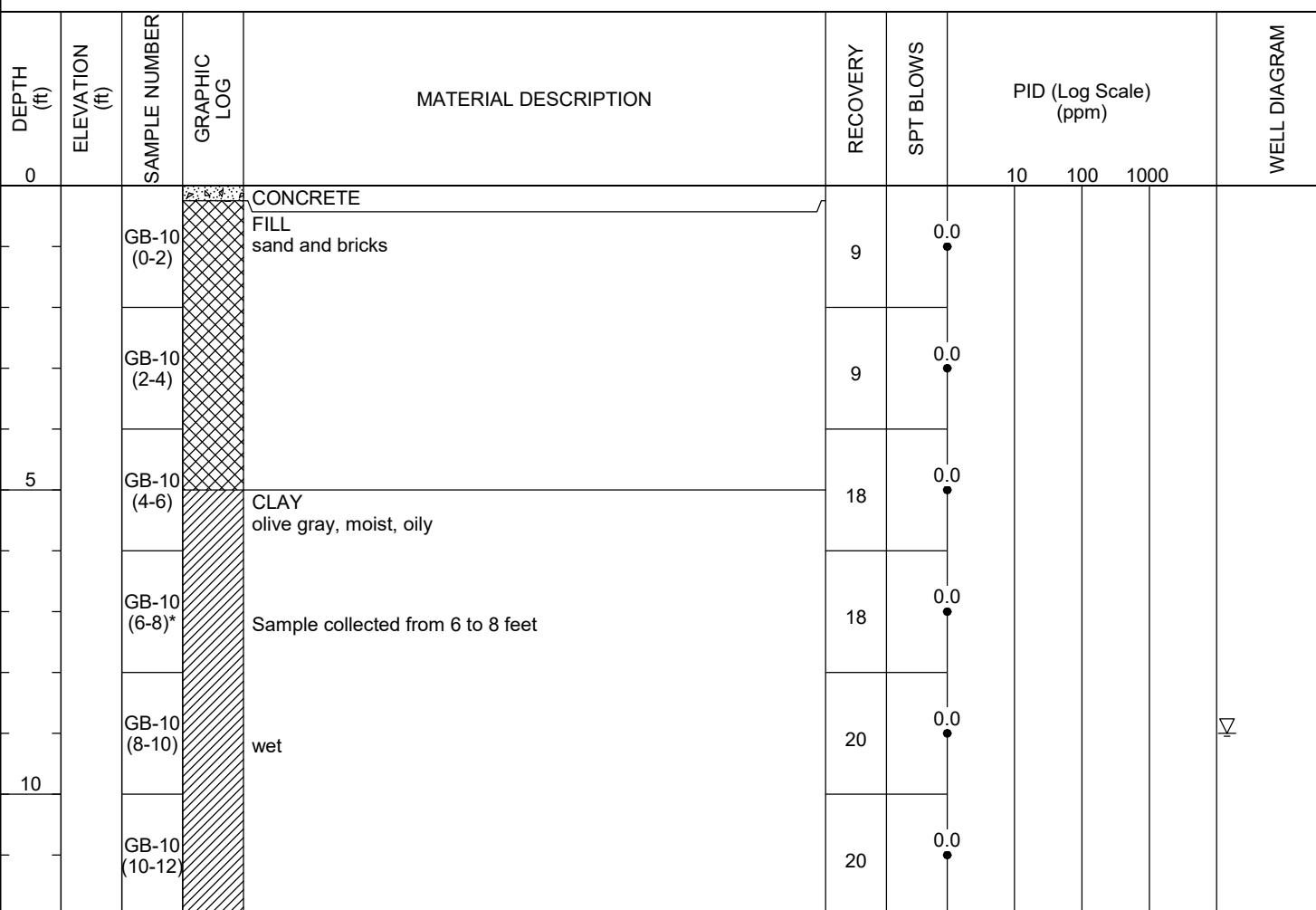
LOGGED BY PDC

CHECKED BY

AT END OF DRILLING ---

NOTES

AFTER DRILLING ---



Bottom of hole at 12.0 feet.

\*Sample submitted for laboratory analysis.



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1915 N. 12th Street  
Toledo, Ohio 43604  
Telephone: (419) 324-2222

# BORING NUMBER GB-11

PAGE 1 OF 1

CLIENT Zepf Center

PROJECT NAME Phase II ESA

PROJECT NUMBER 1664002

PROJECT LOCATION 511 Southard Avenue, Toledo, Ohio

DRILLING CONTRACTOR TTL Associates RM

RIG NO. GROUND ELEVATION

DRILLING METHOD Geoprobe

GROUND WATER LEVELS:

DATE STARTED 6/15/18 COMPLETED 6/15/18

▽ AT TIME OF DRILLING 12.0 ft

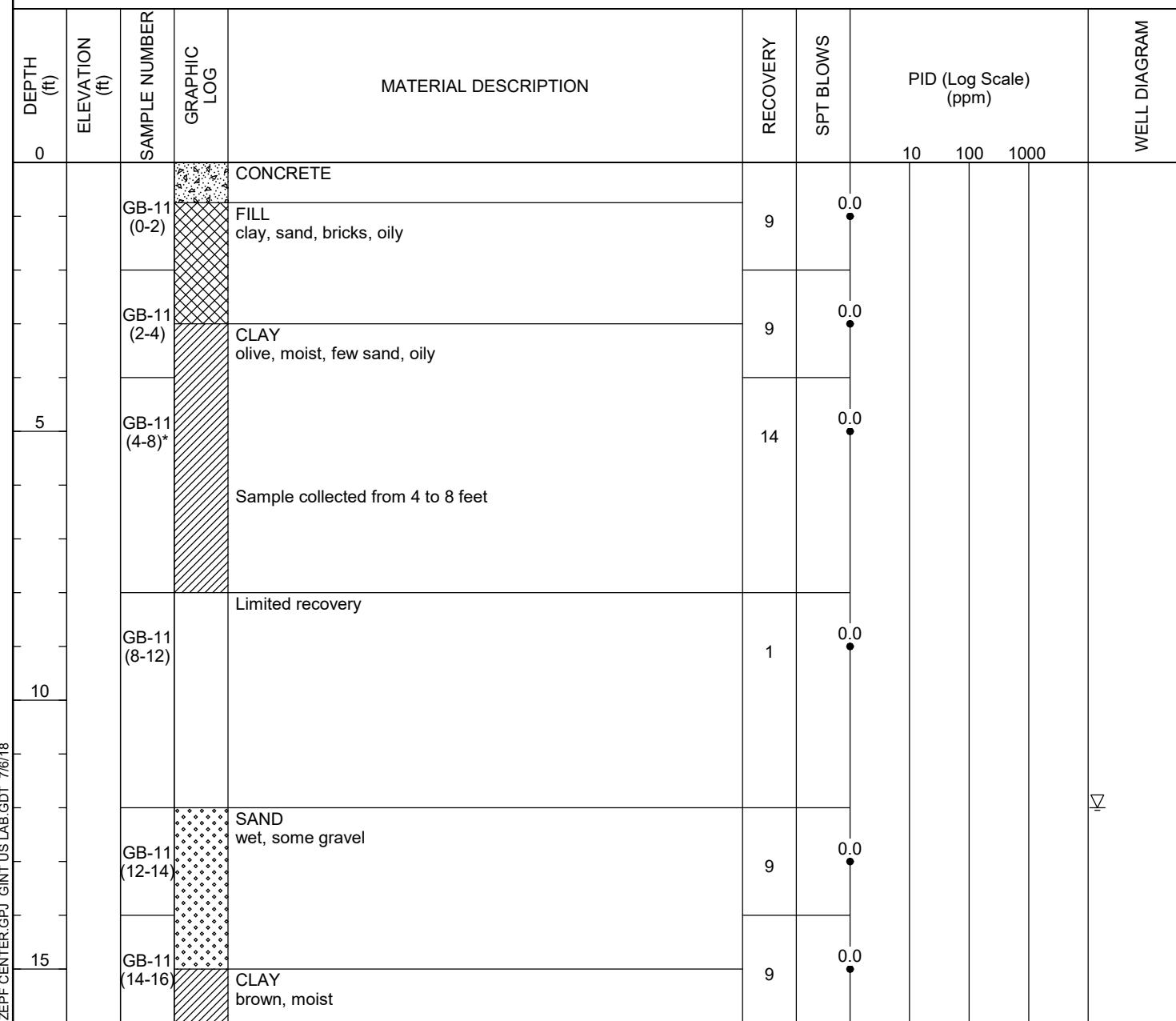
LOGGED BY PDC

CHECKED BY

AT END OF DRILLING ---

NOTES

AFTER DRILLING ---



Bottom of hole at 16.0 feet.

\*Sample submitted for laboratory analysis.



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1915 N. 12th Street  
Toledo, Ohio 43604  
Telephone: (419) 324-2222

# BORING NUMBER GB-12

PAGE 1 OF 1

CLIENT Zepf Center

PROJECT NAME Phase II ESA

PROJECT NUMBER 1664002

PROJECT LOCATION 511 Southard Avenue, Toledo, Ohio

DRILLING CONTRACTOR TTL Associates RM

RIG NO. GROUND ELEVATION

DRILLING METHOD Geoprobe

GROUND WATER LEVELS:

DATE STARTED 6/15/18 COMPLETED 6/15/18

▽ AT TIME OF DRILLING 6.0 ft

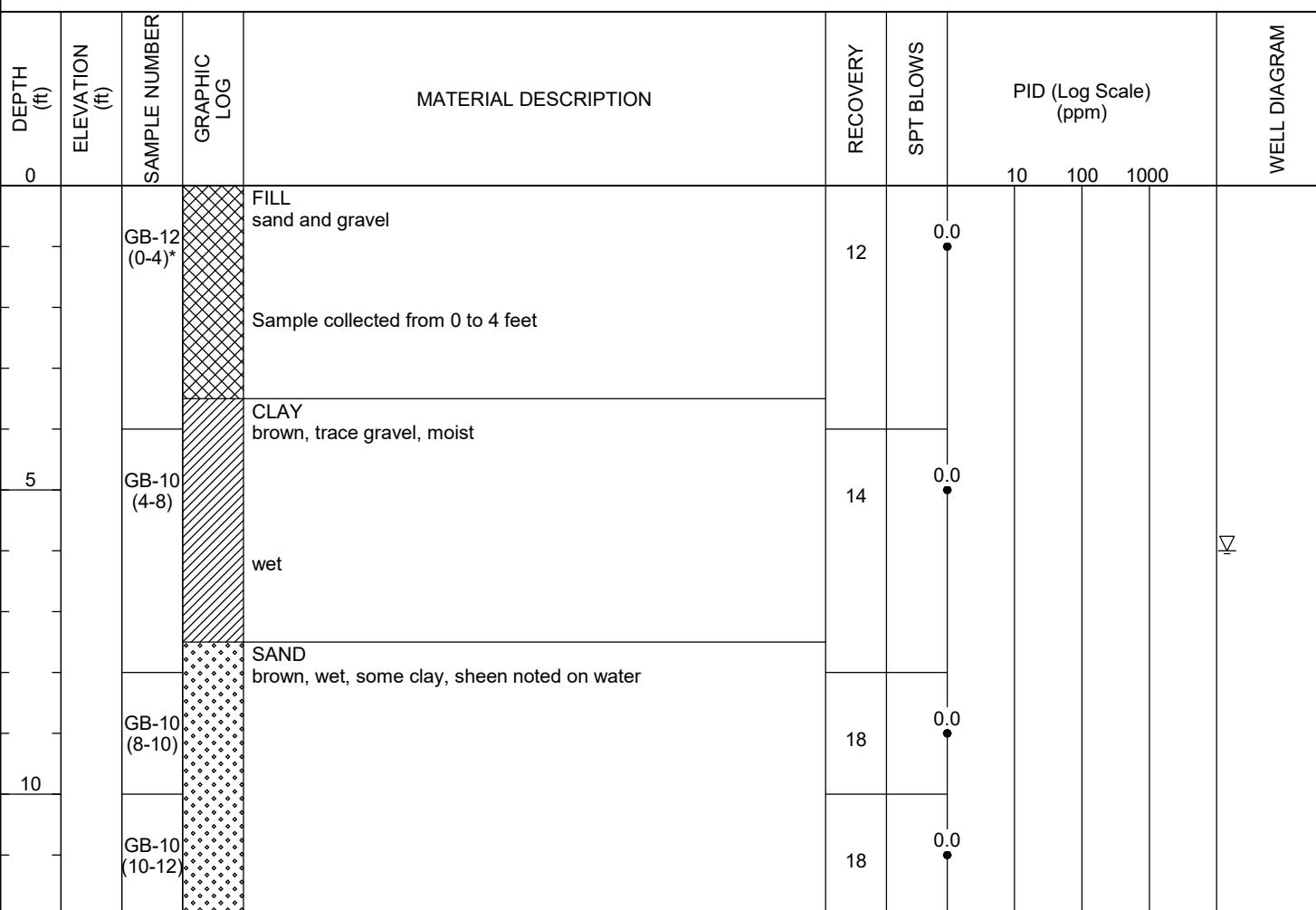
LOGGED BY PDC

CHECKED BY

AT END OF DRILLING ---

NOTES

AFTER DRILLING ---



Bottom of hole at 12.0 feet.

\*Sample submitted for laboratory analysis.

**APPENDIX B**  
**LABORATORY ANALYTICAL REPORTS**

June 26, 2018

## TTL Associates - Toledo, OH

Sample Delivery Group: L1002426

Samples Received: 06/16/2018

Project Number: 10835.15

Description: Zepf

Report To: Paul Chasco  
1915 North 12th Street  
Toledo, OH 43604

Entire Report Reviewed By:



Pam Langford  
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

# TABLE OF CONTENTS

ONE LAB. NATIONWIDE.



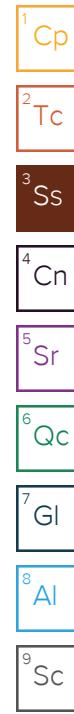
<b>Cp: Cover Page</b>	<b>1</b>	<b>1</b> Cp
<b>Tc: Table of Contents</b>	<b>2</b>	<b>2</b> Tc
<b>Ss: Sample Summary</b>	<b>3</b>	<b>3</b> Ss
<b>Cn: Case Narrative</b>	<b>7</b>	<b>4</b> Cn
<b>Sr: Sample Results</b>	<b>8</b>	<b>5</b> Sr
<b>GB-1 (4-8) L1002426-01</b>	<b>8</b>	<b>6</b> Qc
<b>GB-2 (4-8) L1002426-02</b>	<b>10</b>	<b>7</b> Gl
<b>GB-3 (4-8) L1002426-03</b>	<b>11</b>	<b>8</b> Al
<b>GB-5 (2-4) L1002426-04</b>	<b>13</b>	
<b>GB-6 (2-4) L1002426-05</b>	<b>14</b>	
<b>GB-7 (8-10) L1002426-06</b>	<b>15</b>	
<b>DUP 1 L1002426-07</b>	<b>16</b>	
<b>DUP 2 L1002426-08</b>	<b>17</b>	
<b>GB-8 (4-6) L1002426-09</b>	<b>19</b>	
<b>GB-5 W L1002426-10</b>	<b>21</b>	
<b>GB-6 W L1002426-11</b>	<b>22</b>	
<b>WATER DUPLICATE L1002426-12</b>	<b>23</b>	
<b>GB-9 (8-10) L1002426-13</b>	<b>24</b>	
<b>GB-10 (6-8) L1002426-14</b>	<b>25</b>	
<b>GB-11 (4-8) L1002426-15</b>	<b>26</b>	
<b>GB-12 (0-4) L1002426-16</b>	<b>27</b>	
<b>GB-9W L1002426-17</b>	<b>28</b>	
<b>GB-11W L1002426-18</b>	<b>29</b>	
<b>GB-12W L1002426-19</b>	<b>30</b>	
<b>Qc: Quality Control Summary</b>	<b>31</b>	
<b>Total Solids by Method 2540 G-2011</b>	<b>31</b>	
<b>Wet Chemistry by Method 4500CN E-2011</b>	<b>34</b>	
<b>Wet Chemistry by Method 9012B</b>	<b>36</b>	
<b>Volatile Organic Compounds (GC) by Method 8015B</b>	<b>38</b>	
<b>Volatile Organic Compounds (GC/MS) by Method 8260B</b>	<b>40</b>	
<b>Semi-Volatile Organic Compounds (GC) by Method 8015B</b>	<b>45</b>	
<b>Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM</b>	<b>46</b>	
<b>Gl: Glossary of Terms</b>	<b>50</b>	
<b>Al: Accreditations &amp; Locations</b>	<b>51</b>	
<b>Sc: Sample Chain of Custody</b>	<b>52</b>	

## SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



			Collected by Paul Chasco	Collected date/time 06/14/18 11:05	Received date/time 06/16/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1127580	1	06/22/18 14:33	06/22/18 14:40	JD
Volatile Organic Compounds (GC) by Method 8015B	WG1127994	25	06/21/18 09:14	06/21/18 20:10	RLR
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1127692	1	06/21/18 09:14	06/21/18 15:23	JHH
Semi-Volatile Organic Compounds (GC) by Method 8015B	WG1127286	100	06/21/18 03:17	06/22/18 02:58	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1126721	200	06/20/18 12:52	06/21/18 09:51	DMG
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1126721	50	06/20/18 12:52	06/20/18 22:52	DMG
			Collected by Paul Chasco	Collected date/time 06/14/18 11:35	Received date/time 06/16/18 08:45
<b>GB-2 (4-8) L1002426-02 Solid</b>					
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1127582	1	06/21/18 16:42	06/21/18 16:55	JD
Volatile Organic Compounds (GC) by Method 8015B	WG1127994	25	06/21/18 09:14	06/21/18 20:32	RLR
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1127692	1	06/21/18 09:14	06/21/18 15:42	JHH
Semi-Volatile Organic Compounds (GC) by Method 8015B	WG1127286	100	06/21/18 03:17	06/22/18 03:11	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1126721	50	06/20/18 12:52	06/20/18 23:14	DMG
			Collected by Paul Chasco	Collected date/time 06/14/18 12:00	Received date/time 06/16/18 08:45
<b>GB-3 (4-8) L1002426-03 Solid</b>					
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1127582	1	06/21/18 16:42	06/21/18 16:55	JD
Wet Chemistry by Method 9012B	WG1126232	1	06/19/18 10:45	06/19/18 15:00	KK
Volatile Organic Compounds (GC) by Method 8015B	WG1127994	25	06/21/18 09:14	06/21/18 20:53	RLR
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1127692	1	06/21/18 09:14	06/21/18 16:02	JHH
Semi-Volatile Organic Compounds (GC) by Method 8015B	WG1127286	100	06/21/18 03:17	06/22/18 03:24	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1126721	60	06/20/18 12:52	06/20/18 22:08	DMG
			Collected by Paul Chasco	Collected date/time 06/14/18 14:50	Received date/time 06/16/18 08:45
<b>GB-5 (2-4) L1002426-04 Solid</b>					
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1127582	1	06/21/18 16:42	06/21/18 16:55	JD
Wet Chemistry by Method 9012B	WG1126232	1	06/19/18 10:45	06/19/18 15:02	KK
Semi-Volatile Organic Compounds (GC) by Method 8015B	WG1127286	10	06/21/18 03:17	06/22/18 23:12	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1126721	1	06/20/18 12:52	06/20/18 16:17	DMG
			Collected by Paul Chasco	Collected date/time 06/14/18 13:45	Received date/time 06/16/18 08:45
<b>GB-6 (2-4) L1002426-05 Solid</b>					
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1127582	1	06/21/18 16:42	06/21/18 16:55	JD
Wet Chemistry by Method 9012B	WG1126232	1	06/19/18 10:45	06/19/18 15:03	KK
Semi-Volatile Organic Compounds (GC) by Method 8015B	WG1127286	1	06/21/18 03:17	06/22/18 01:54	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1126721	1	06/20/18 12:52	06/20/18 16:39	DMG



## SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



GB-7 (8-10) L1002426-06 Solid			Collected by Paul Chasco	Collected date/time 06/14/18 15:50	Received date/time 06/16/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1127582	1	06/21/18 16:42	06/21/18 16:55	JD
Wet Chemistry by Method 9012B	WG1126232	1	06/19/18 10:45	06/19/18 15:04	KK
Semi-Volatile Organic Compounds (GC) by Method 8015B	WG1127286	5	06/21/18 03:17	06/21/18 23:25	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1126721	1	06/20/18 12:52	06/20/18 17:01	DMG
DUP 1 L1002426-07 Solid			Collected by Paul Chasco	Collected date/time 06/14/18 00:00	Received date/time 06/16/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1127582	1	06/21/18 16:42	06/21/18 16:55	JD
Wet Chemistry by Method 9012B	WG1126232	1	06/19/18 10:45	06/19/18 15:05	KK
Semi-Volatile Organic Compounds (GC) by Method 8015B	WG1127286	5	06/21/18 03:17	06/21/18 23:38	DMW
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1126721	1	06/20/18 12:52	06/20/18 17:23	DMG
DUP 2 L1002426-08 Solid			Collected by Paul Chasco	Collected date/time 06/14/18 00:00	Received date/time 06/16/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1127582	1	06/21/18 16:42	06/21/18 16:55	JD
Wet Chemistry by Method 9012B	WG1126232	1	06/19/18 10:45	06/19/18 15:06	KK
Volatile Organic Compounds (GC) by Method 8015B	WG1127994	25	06/21/18 09:14	06/21/18 21:15	RLR
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1127737	1	06/21/18 09:14	06/21/18 17:17	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015B	WG1127286	20	06/21/18 03:17	06/22/18 23:24	DMW
GB-8 (4-6) L1002426-09 Solid			Collected by Paul Chasco	Collected date/time 06/14/18 16:15	Received date/time 06/16/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1127582	1	06/21/18 16:42	06/21/18 16:55	JD
Wet Chemistry by Method 9012B	WG1126232	1	06/19/18 10:45	06/19/18 15:07	KK
Volatile Organic Compounds (GC) by Method 8015B	WG1129517	25	06/21/18 09:14	06/25/18 15:57	JAH
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1127737	1	06/21/18 09:14	06/21/18 17:36	BMB
Semi-Volatile Organic Compounds (GC) by Method 8015B	WG1127286	20	06/21/18 03:17	06/22/18 01:15	DMW
GB-5 W L1002426-10 GW			Collected by Paul Chasco	Collected date/time 06/14/18 15:15	Received date/time 06/16/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 4500CN E-2011	WG1125855	10	06/19/18 09:48	06/19/18 12:53	KK
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1126718	20	06/20/18 09:28	06/20/18 21:25	KM
GB-6 W L1002426-11 GW			Collected by Paul Chasco	Collected date/time 06/14/18 14:20	Received date/time 06/16/18 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Wet Chemistry by Method 4500CN E-2011	WG1127135	1	06/20/18 14:21	06/21/18 09:26	KK
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1126718	1	06/20/18 09:28	06/20/18 18:53	KM

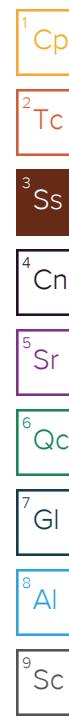


## SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



				Collected by Paul Chasco	Collected date/time 06/14/18 00:00	Received date/time 06/16/18 08:45
<b>WATER DUPLICATE L1002426-12 GW</b>						
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	
Wet Chemistry by Method 4500CN E-2011	WG1125855	10	06/19/18 09:48	06/19/18 12:56	KK	
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1126718	20	06/20/18 09:28	06/20/18 21:04	KM	
				Collected by Paul Chasco	Collected date/time 06/15/18 10:05	Received date/time 06/16/18 08:45
<b>GB-9 (8-10) L1002426-13 Solid</b>						
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	
Total Solids by Method 2540 G-2011	WG1127582	1	06/21/18 16:42	06/21/18 16:55	JD	
Wet Chemistry by Method 9012B	WG1126232	1	06/19/18 10:45	06/19/18 15:12	KK	
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1126721	1	06/20/18 12:52	06/20/18 17:45	DMG	
				Collected by Paul Chasco	Collected date/time 06/15/18 10:40	Received date/time 06/16/18 08:45
<b>GB-10 (6-8) L1002426-14 Solid</b>						
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	
Total Solids by Method 2540 G-2011	WG1127582	1	06/21/18 16:42	06/21/18 16:55	JD	
Wet Chemistry by Method 9012B	WG1126931	1	06/20/18 09:01	06/20/18 13:38	KK	
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1126721	1	06/20/18 12:52	06/20/18 18:07	DMG	
				Collected by Paul Chasco	Collected date/time 06/15/18 11:00	Received date/time 06/16/18 08:45
<b>GB-11 (4-8) L1002426-15 Solid</b>						
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	
Total Solids by Method 2540 G-2011	WG1127585	1	06/22/18 15:12	06/22/18 15:21	JD	
Wet Chemistry by Method 9012B	WG1126931	1	06/20/18 09:01	06/20/18 13:40	KK	
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1126721	1	06/20/18 12:52	06/20/18 18:29	DMG	
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1126721	20	06/20/18 12:52	06/21/18 09:08	DMG	
				Collected by Paul Chasco	Collected date/time 06/15/18 12:05	Received date/time 06/16/18 08:45
<b>GB-12 (0-4) L1002426-16 Solid</b>						
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	
Total Solids by Method 2540 G-2011	WG1127585	1	06/22/18 15:12	06/22/18 15:21	JD	
Wet Chemistry by Method 9012B	WG1126931	1	06/20/18 09:01	06/20/18 13:46	KK	
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1126721	1	06/20/18 12:52	06/20/18 18:50	DMG	
				Collected by Paul Chasco	Collected date/time 06/15/18 10:15	Received date/time 06/16/18 08:45
<b>GB-9W L1002426-17 GW</b>						
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	
Wet Chemistry by Method 4500CN E-2011	WG1125855	1	06/19/18 09:48	06/19/18 12:57	KK	
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1126718	1	06/20/18 09:28	06/21/18 11:48	KM	
				Collected by Paul Chasco	Collected date/time 06/15/18 11:20	Received date/time 06/16/18 08:45
<b>GB-11W L1002426-18 GW</b>						
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	
Wet Chemistry by Method 4500CN E-2011	WG1125855	1	06/19/18 09:48	06/19/18 12:58	KK	
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1126718	10.3	06/20/18 09:28	06/20/18 20:20	KM	



## SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



GB-12W L1002426-19 GW

Collected by	Collected date/time	Received date/time
Paul Chasco	06/15/18 12:25	06/16/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM	WG1126718	15	06/20/18 09:28	06/21/18 12:09	KM

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss<sup>4</sup>Cn<sup>5</sup>Sr<sup>6</sup>Qc<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Pam Langford  
Technical Service Representative

- <sup>1</sup> Cp
- <sup>2</sup> Tc
- <sup>3</sup> Ss
- <sup>4</sup> Cn
- <sup>5</sup> Sr
- <sup>6</sup> Qc
- <sup>7</sup> GI
- <sup>8</sup> AI
- <sup>9</sup> SC



## Total Solids by Method 2540 G-2011

Analyte	Result %	<u>Qualifier</u>	Dilution	Analysis date / time	<u>Batch</u>
Total Solids	88.1		1	06/22/2018 14:40	<a href="#">WG1127580</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc

## Volatile Organic Compounds (GC) by Method 8015B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
TPHG C6 - C12	5.68		2.84	25	06/21/2018 20:10	<a href="#">WG1127994</a>
(S) a,a,a-Trifluorotoluene(FID)	101		77.0-120		06/21/2018 20:10	<a href="#">WG1127994</a>

## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Benzene	ND		0.00114	1	06/21/2018 15:23	<a href="#">WG1127692</a>
Toluene	ND		0.00568	1	06/21/2018 15:23	<a href="#">WG1127692</a>
Ethylbenzene	ND		0.00284	1	06/21/2018 15:23	<a href="#">WG1127692</a>
Total Xylenes	0.0106		0.00738	1	06/21/2018 15:23	<a href="#">WG1127692</a>
(S) Toluene-d8	110		80.0-120		06/21/2018 15:23	<a href="#">WG1127692</a>
(S) Dibromofluoromethane	94.0		74.0-131		06/21/2018 15:23	<a href="#">WG1127692</a>
(S) a,a,a-Trifluorotoluene	105		80.0-120		06/21/2018 15:23	<a href="#">WG1127692</a>
(S) 4-Bromofluorobenzene	99.1		64.0-132		06/21/2018 15:23	<a href="#">WG1127692</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
C10-C20 Hydrocarbons	3310		454	100	06/22/2018 02:58	<a href="#">WG1127286</a>
C20-C34 Hydrocarbons	7090		454	100	06/22/2018 02:58	<a href="#">WG1127286</a>
(S) o-Terphenyl	0.000	<u>J7</u>	18.0-148		06/22/2018 02:58	<a href="#">WG1127286</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Anthracene	86.7		0.341	50	06/20/2018 22:52	<a href="#">WG1126721</a>
Acenaphthene	38.9		0.341	50	06/20/2018 22:52	<a href="#">WG1126721</a>
Acenaphthylene	3.05		0.341	50	06/20/2018 22:52	<a href="#">WG1126721</a>
Benzo(a)anthracene	73.8		0.341	50	06/20/2018 22:52	<a href="#">WG1126721</a>
Benzo(a)pyrene	58.7		0.341	50	06/20/2018 22:52	<a href="#">WG1126721</a>
Benzo(b)fluoranthene	77.0		0.341	50	06/20/2018 22:52	<a href="#">WG1126721</a>
Benzo(g,h,i)perylene	27.2		0.341	50	06/20/2018 22:52	<a href="#">WG1126721</a>
Benzo(k)fluoranthene	21.2		0.341	50	06/20/2018 22:52	<a href="#">WG1126721</a>
Chrysene	56.6		0.341	50	06/20/2018 22:52	<a href="#">WG1126721</a>
Dibenz(a,h)anthracene	8.50		0.341	50	06/20/2018 22:52	<a href="#">WG1126721</a>
Fluoranthene	246		1.36	200	06/21/2018 09:51	<a href="#">WG1126721</a>
Fluorene	69.6		0.341	50	06/20/2018 22:52	<a href="#">WG1126721</a>
Indeno(1,2,3-cd)pyrene	23.7		0.341	50	06/20/2018 22:52	<a href="#">WG1126721</a>
Naphthalene	91.9		1.14	50	06/20/2018 22:52	<a href="#">WG1126721</a>
Phenanthrene	317		1.36	200	06/21/2018 09:51	<a href="#">WG1126721</a>
Pyrene	156		0.341	50	06/20/2018 22:52	<a href="#">WG1126721</a>
1-Methylnaphthalene	24.3		1.14	50	06/20/2018 22:52	<a href="#">WG1126721</a>
2-Methylnaphthalene	36.7		1.14	50	06/20/2018 22:52	<a href="#">WG1126721</a>
2-Chloronaphthalene	ND		1.14	50	06/20/2018 22:52	<a href="#">WG1126721</a>
(S) p-Terphenyl-d14	3.83	<u>J7</u>	23.0-120		06/20/2018 22:52	<a href="#">WG1126721</a>
(S) p-Terphenyl-d14	248	<u>J7</u>	23.0-120		06/21/2018 09:51	<a href="#">WG1126721</a>
(S) Nitrobenzene-d5	1.10	<u>J7</u>	14.0-149		06/20/2018 22:52	<a href="#">WG1126721</a>
(S) Nitrobenzene-d5	0.000	<u>J7</u>	14.0-149		06/21/2018 09:51	<a href="#">WG1126721</a>
(S) 2-Fluorobiphenyl	67.2	<u>J7</u>	34.0-125		06/21/2018 09:51	<a href="#">WG1126721</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc



## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>	
(S) 2-Fluorobiphenyl	1.17	J7	34.0-125		06/20/2018 22:52	WG1126721	<sup>1</sup> Cp
							<sup>2</sup> Tc
							<sup>3</sup> Ss
							<sup>4</sup> Cn
							<sup>5</sup> Sr
							<sup>6</sup> Qc
							<sup>7</sup> Gl
							<sup>8</sup> Al
							<sup>9</sup> Sc



## Total Solids by Method 2540 G-2011

Analyte	Result %	<u>Qualifier</u>	Dilution	Analysis date / time	<u>Batch</u>
Total Solids	88.2		1	06/21/2018 16:55	<a href="#">WG1127582</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc

## Volatile Organic Compounds (GC) by Method 8015B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
TPHG C6 - C12	4.71		2.83	25	06/21/2018 20:32	<a href="#">WG1127994</a>
(S) a,a,a-Trifluorotoluene(FID)	105		77.0-120		06/21/2018 20:32	<a href="#">WG1127994</a>

## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Benzene	ND		0.00113	1	06/21/2018 15:42	<a href="#">WG1127692</a>
Toluene	ND		0.00567	1	06/21/2018 15:42	<a href="#">WG1127692</a>
Ethylbenzene	ND		0.00283	1	06/21/2018 15:42	<a href="#">WG1127692</a>
Total Xylenes	ND		0.00737	1	06/21/2018 15:42	<a href="#">WG1127692</a>
(S) Toluene-d8	107		80.0-120		06/21/2018 15:42	<a href="#">WG1127692</a>
(S) Dibromofluoromethane	105		74.0-131		06/21/2018 15:42	<a href="#">WG1127692</a>
(S) a,a,a-Trifluorotoluene	102		80.0-120		06/21/2018 15:42	<a href="#">WG1127692</a>
(S) 4-Bromofluorobenzene	95.2		64.0-132		06/21/2018 15:42	<a href="#">WG1127692</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
C10-C20 Hydrocarbons	ND		454	100	06/22/2018 03:11	<a href="#">WG1127286</a>
C20-C34 Hydrocarbons	1740		454	100	06/22/2018 03:11	<a href="#">WG1127286</a>
(S) o-Terphenyl	0.000	<u>J7</u>	18.0-148		06/22/2018 03:11	<a href="#">WG1127286</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Anthracene	6.82		0.340	50	06/20/2018 23:14	<a href="#">WG1126721</a>
Acenaphthene	2.11		0.340	50	06/20/2018 23:14	<a href="#">WG1126721</a>
Acenaphthylene	1.84		0.340	50	06/20/2018 23:14	<a href="#">WG1126721</a>
Benzo(a)anthracene	14.7		0.340	50	06/20/2018 23:14	<a href="#">WG1126721</a>
Benzo(a)pyrene	13.2		0.340	50	06/20/2018 23:14	<a href="#">WG1126721</a>
Benzo(b)fluoranthene	16.5		0.340	50	06/20/2018 23:14	<a href="#">WG1126721</a>
Benzo(g,h,i)perylene	7.02		0.340	50	06/20/2018 23:14	<a href="#">WG1126721</a>
Benzo(k)fluoranthene	5.16		0.340	50	06/20/2018 23:14	<a href="#">WG1126721</a>
Chrysene	11.3		0.340	50	06/20/2018 23:14	<a href="#">WG1126721</a>
Dibenz(a,h)anthracene	2.00		0.340	50	06/20/2018 23:14	<a href="#">WG1126721</a>
Fluoranthene	38.1		0.340	50	06/20/2018 23:14	<a href="#">WG1126721</a>
Fluorene	2.36		0.340	50	06/20/2018 23:14	<a href="#">WG1126721</a>
Indeno(1,2,3-cd)pyrene	6.48		0.340	50	06/20/2018 23:14	<a href="#">WG1126721</a>
Naphthalene	ND		1.13	50	06/20/2018 23:14	<a href="#">WG1126721</a>
Phenanthrene	28.3		0.340	50	06/20/2018 23:14	<a href="#">WG1126721</a>
Pyrene	33.8		0.340	50	06/20/2018 23:14	<a href="#">WG1126721</a>
1-Methylnaphthalene	ND		1.13	50	06/20/2018 23:14	<a href="#">WG1126721</a>
2-Methylnaphthalene	ND		1.13	50	06/20/2018 23:14	<a href="#">WG1126721</a>
2-Chloronaphthalene	ND		1.13	50	06/20/2018 23:14	<a href="#">WG1126721</a>
(S) p-Terphenyl-d14	1.78	<u>J7</u>	23.0-120		06/20/2018 23:14	<a href="#">WG1126721</a>
(S) Nitrobenzene-d5	0.631	<u>J7</u>	14.0-149		06/20/2018 23:14	<a href="#">WG1126721</a>
(S) 2-Fluorobiphenyl	1.01	<u>J7</u>	34.0-125		06/20/2018 23:14	<a href="#">WG1126721</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc



## Total Solids by Method 2540 G-2011

Analyte	Result %	<u>Qualifier</u>	Dilution	Analysis date / time	<u>Batch</u>
Total Solids	93.4		1	06/21/2018 16:55	<a href="#">WG1127582</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 GI

8 Al

9 Sc

## Wet Chemistry by Method 9012B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Cyanide	2.00		0.268	1	06/19/2018 15:00	<a href="#">WG1126232</a>

## Volatile Organic Compounds (GC) by Method 8015B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
TPHG C6 - C12	14.5		2.68	25	06/21/2018 20:53	<a href="#">WG1127994</a>
(S) a,a,a-Trifluorotoluene(FID)	106		77.0-120		06/21/2018 20:53	<a href="#">WG1127994</a>

## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Benzene	ND		0.00107	1	06/21/2018 16:02	<a href="#">WG1127692</a>
Toluene	ND		0.00535	1	06/21/2018 16:02	<a href="#">WG1127692</a>
Ethylbenzene	ND		0.00268	1	06/21/2018 16:02	<a href="#">WG1127692</a>
Total Xylenes	0.0102		0.00696	1	06/21/2018 16:02	<a href="#">WG1127692</a>
(S) Toluene-d8	110		80.0-120		06/21/2018 16:02	<a href="#">WG1127692</a>
(S) Dibromofluoromethane	92.6		74.0-131		06/21/2018 16:02	<a href="#">WG1127692</a>
(S) a,a,a-Trifluorotoluene	103		80.0-120		06/21/2018 16:02	<a href="#">WG1127692</a>
(S) 4-Bromofluorobenzene	114		64.0-132		06/21/2018 16:02	<a href="#">WG1127692</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
C10-C20 Hydrocarbons	1720		428	100	06/22/2018 03:24	<a href="#">WG1127286</a>
C20-C34 Hydrocarbons	4440		428	100	06/22/2018 03:24	<a href="#">WG1127286</a>
(S) o-Terphenyl	0.000	J7	18.0-148		06/22/2018 03:24	<a href="#">WG1127286</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Anthracene	15.0		0.385	60	06/20/2018 22:08	<a href="#">WG1126721</a>
Acenaphthene	4.66		0.385	60	06/20/2018 22:08	<a href="#">WG1126721</a>
Acenaphthylene	2.61		0.385	60	06/20/2018 22:08	<a href="#">WG1126721</a>
Benzo(a)anthracene	30.0		0.385	60	06/20/2018 22:08	<a href="#">WG1126721</a>
Benzo(a)pyrene	25.4		0.385	60	06/20/2018 22:08	<a href="#">WG1126721</a>
Benzo(b)fluoranthene	34.7		0.385	60	06/20/2018 22:08	<a href="#">WG1126721</a>
Benzo(g,h,i)perylene	13.0		0.385	60	06/20/2018 22:08	<a href="#">WG1126721</a>
Benzo(k)fluoranthene	11.6		0.385	60	06/20/2018 22:08	<a href="#">WG1126721</a>
Chrysene	24.3		0.385	60	06/20/2018 22:08	<a href="#">WG1126721</a>
Dibenz(a,h)anthracene	5.04		0.385	60	06/20/2018 22:08	<a href="#">WG1126721</a>
Fluoranthene	75.2		0.385	60	06/20/2018 22:08	<a href="#">WG1126721</a>
Fluorene	10.4		0.385	60	06/20/2018 22:08	<a href="#">WG1126721</a>
Indeno[1,2,3-cd]pyrene	12.2		0.385	60	06/20/2018 22:08	<a href="#">WG1126721</a>
Naphthalene	2.05		1.28	60	06/20/2018 22:08	<a href="#">WG1126721</a>
Phenanthrene	43.3		0.385	60	06/20/2018 22:08	<a href="#">WG1126721</a>
Pyrene	58.4		0.385	60	06/20/2018 22:08	<a href="#">WG1126721</a>
1-Methylnaphthalene	1.77		1.28	60	06/20/2018 22:08	<a href="#">WG1126721</a>
2-Methylnaphthalene	ND		1.28	60	06/20/2018 22:08	<a href="#">WG1126721</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 GI

8 Al

9 Sc



## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch	
2-Chloronaphthalene	ND		1.28	60	06/20/2018 22:08	<a href="#">WG1126721</a>	<sup>1</sup> Cp
(S) <i>p</i> -Terphenyl- <i>d</i> 14	3.28	<u>J7</u>	23.0-120		06/20/2018 22:08	<a href="#">WG1126721</a>	<sup>2</sup> Tc
(S) Nitrobenzene- <i>d</i> 5	2.98	<u>J7</u>	14.0-149		06/20/2018 22:08	<a href="#">WG1126721</a>	<sup>3</sup> Ss
(S) 2-Fluorobiphenyl	2.65	<u>J7</u>	34.0-125		06/20/2018 22:08	<a href="#">WG1126721</a>	<sup>4</sup> Cn
							<sup>5</sup> Sr
							<sup>6</sup> Qc
							<sup>7</sup> Gl
							<sup>8</sup> Al
							<sup>9</sup> Sc



## Total Solids by Method 2540 G-2011

Analyte	Result %	<u>Qualifier</u>	Dilution	Analysis date / time	<u>Batch</u>
Total Solids	84.3		1	06/21/2018 16:55	<a href="#">WG1127582</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Wet Chemistry by Method 9012B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Cyanide	0.466		0.297	1	06/19/2018 15:02	<a href="#">WG1126232</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
C10-C20 Hydrocarbons	1470		47.5	10	06/22/2018 23:12	<a href="#">WG1127286</a>
C20-C34 Hydrocarbons	1410		47.5	10	06/22/2018 23:12	<a href="#">WG1127286</a>
(S) o-Terphenyl	143		18.0-148		06/22/2018 23:12	<a href="#">WG1127286</a>

6 Qc

7 Gl

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Anthracene	ND		0.00712	1	06/20/2018 16:17	<a href="#">WG1126721</a>
Acenaphthene	0.0490		0.00712	1	06/20/2018 16:17	<a href="#">WG1126721</a>
Acenaphthylene	ND		0.00712	1	06/20/2018 16:17	<a href="#">WG1126721</a>
Benzo(a)anthracene	0.129		0.00712	1	06/20/2018 16:17	<a href="#">WG1126721</a>
Benzo(a)pyrene	0.102		0.00712	1	06/20/2018 16:17	<a href="#">WG1126721</a>
Benzo(b)fluoranthene	0.139		0.00712	1	06/20/2018 16:17	<a href="#">WG1126721</a>
Benzo(g,h,i)perylene	0.0729		0.00712	1	06/20/2018 16:17	<a href="#">WG1126721</a>
Benzo(k)fluoranthene	0.0432		0.00712	1	06/20/2018 16:17	<a href="#">WG1126721</a>
Chrysene	0.122		0.00712	1	06/20/2018 16:17	<a href="#">WG1126721</a>
Dibenz(a,h)anthracene	0.0189		0.00712	1	06/20/2018 16:17	<a href="#">WG1126721</a>
Fluoranthene	0.381		0.00712	1	06/20/2018 16:17	<a href="#">WG1126721</a>
Fluorene	0.149		0.00712	1	06/20/2018 16:17	<a href="#">WG1126721</a>
Indeno(1,2,3-cd)pyrene	0.0578		0.00712	1	06/20/2018 16:17	<a href="#">WG1126721</a>
Naphthalene	0.0479		0.0237	1	06/20/2018 16:17	<a href="#">WG1126721</a>
Phenanthrene	0.741		0.00712	1	06/20/2018 16:17	<a href="#">WG1126721</a>
Pyrene	0.562		0.00712	1	06/20/2018 16:17	<a href="#">WG1126721</a>
1-Methylnaphthalene	0.0663		0.0237	1	06/20/2018 16:17	<a href="#">WG1126721</a>
2-Methylnaphthalene	0.0616		0.0237	1	06/20/2018 16:17	<a href="#">WG1126721</a>
2-Chloronaphthalene	ND		0.0237	1	06/20/2018 16:17	<a href="#">WG1126721</a>
(S) p-Terphenyl-d14	118		23.0-120		06/20/2018 16:17	<a href="#">WG1126721</a>
(S) Nitrobenzene-d5	86.7		14.0-149		06/20/2018 16:17	<a href="#">WG1126721</a>
(S) 2-Fluorobiphenyl	75.0		34.0-125		06/20/2018 16:17	<a href="#">WG1126721</a>



## Total Solids by Method 2540 G-2011

Analyte	Result %	<u>Qualifier</u>	Dilution	Analysis date / time	<u>Batch</u>
Total Solids	86.3		1	06/21/2018 16:55	<a href="#">WG1127582</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc

## Wet Chemistry by Method 9012B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Cyanide	0.445		0.290	1	06/19/2018 15:03	<a href="#">WG1126232</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
C10-C20 Hydrocarbons	15.0		4.63	1	06/22/2018 01:54	<a href="#">WG1127286</a>
C20-C34 Hydrocarbons	35.1		4.63	1	06/22/2018 01:54	<a href="#">WG1127286</a>
(S) o-Terphenyl	58.6		18.0-148		06/22/2018 01:54	<a href="#">WG1127286</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Anthracene	0.0167		0.00695	1	06/20/2018 16:39	<a href="#">WG1126721</a>
Acenaphthene	0.00844		0.00695	1	06/20/2018 16:39	<a href="#">WG1126721</a>
Acenaphthylene	ND		0.00695	1	06/20/2018 16:39	<a href="#">WG1126721</a>
Benzo(a)anthracene	0.0749		0.00695	1	06/20/2018 16:39	<a href="#">WG1126721</a>
Benzo(a)pyrene	0.0680		0.00695	1	06/20/2018 16:39	<a href="#">WG1126721</a>
Benzo(b)fluoranthene	0.0840		0.00695	1	06/20/2018 16:39	<a href="#">WG1126721</a>
Benzo(g,h,i)perylene	0.0389		0.00695	1	06/20/2018 16:39	<a href="#">WG1126721</a>
Benzo(k)fluoranthene	0.0298		0.00695	1	06/20/2018 16:39	<a href="#">WG1126721</a>
Chrysene	0.0616		0.00695	1	06/20/2018 16:39	<a href="#">WG1126721</a>
Dibenz(a,h)anthracene	0.0119		0.00695	1	06/20/2018 16:39	<a href="#">WG1126721</a>
Fluoranthene	0.129		0.00695	1	06/20/2018 16:39	<a href="#">WG1126721</a>
Fluorene	0.0326		0.00695	1	06/20/2018 16:39	<a href="#">WG1126721</a>
Indeno(1,2,3-cd)pyrene	0.0360		0.00695	1	06/20/2018 16:39	<a href="#">WG1126721</a>
Naphthalene	ND		0.0232	1	06/20/2018 16:39	<a href="#">WG1126721</a>
Phenanthrene	0.0448		0.00695	1	06/20/2018 16:39	<a href="#">WG1126721</a>
Pyrene	0.110		0.00695	1	06/20/2018 16:39	<a href="#">WG1126721</a>
1-Methylnaphthalene	ND		0.0232	1	06/20/2018 16:39	<a href="#">WG1126721</a>
2-Methylnaphthalene	ND		0.0232	1	06/20/2018 16:39	<a href="#">WG1126721</a>
2-Chloronaphthalene	ND		0.0232	1	06/20/2018 16:39	<a href="#">WG1126721</a>
(S) p-Terphenyl-d14	79.4		23.0-120		06/20/2018 16:39	<a href="#">WG1126721</a>
(S) Nitrobenzene-d5	85.3		14.0-149		06/20/2018 16:39	<a href="#">WG1126721</a>
(S) 2-Fluorobiphenyl	73.6		34.0-125		06/20/2018 16:39	<a href="#">WG1126721</a>



## Total Solids by Method 2540 G-2011

Analyte	Result %	<u>Qualifier</u>	Dilution	Analysis date / time	<u>Batch</u>
Total Solids	84.8		1	06/21/2018 16:55	<a href="#">WG1127582</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc

## Wet Chemistry by Method 9012B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Cyanide	ND		0.295	1	06/19/2018 15:04	<a href="#">WG1126232</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
C10-C20 Hydrocarbons	242		23.6	5	06/21/2018 23:25	<a href="#">WG1127286</a>
C20-C34 Hydrocarbons	542		23.6	5	06/21/2018 23:25	<a href="#">WG1127286</a>
(S) o-Terphenyl	123		18.0-148		06/21/2018 23:25	<a href="#">WG1127286</a>

<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Anthracene	ND		0.00707	1	06/20/2018 17:01	<a href="#">WG1126721</a>
Acenaphthene	ND		0.00707	1	06/20/2018 17:01	<a href="#">WG1126721</a>
Acenaphthylene	ND		0.00707	1	06/20/2018 17:01	<a href="#">WG1126721</a>
Benzo(a)anthracene	0.0129		0.00707	1	06/20/2018 17:01	<a href="#">WG1126721</a>
Benzo(a)pyrene	0.0106		0.00707	1	06/20/2018 17:01	<a href="#">WG1126721</a>
Benzo(b)fluoranthene	0.0173		0.00707	1	06/20/2018 17:01	<a href="#">WG1126721</a>
Benzo(g,h,i)perylene	0.00786		0.00707	1	06/20/2018 17:01	<a href="#">WG1126721</a>
Benzo(k)fluoranthene	ND		0.00707	1	06/20/2018 17:01	<a href="#">WG1126721</a>
Chrysene	0.0154		0.00707	1	06/20/2018 17:01	<a href="#">WG1126721</a>
Dibenz(a,h)anthracene	ND		0.00707	1	06/20/2018 17:01	<a href="#">WG1126721</a>
Fluoranthene	0.0599		0.00707	1	06/20/2018 17:01	<a href="#">WG1126721</a>
Fluorene	0.0101		0.00707	1	06/20/2018 17:01	<a href="#">WG1126721</a>
Indeno(1,2,3-cd)pyrene	ND		0.00707	1	06/20/2018 17:01	<a href="#">WG1126721</a>
Naphthalene	ND		0.0236	1	06/20/2018 17:01	<a href="#">WG1126721</a>
Phenanthrene	0.0338		0.00707	1	06/20/2018 17:01	<a href="#">WG1126721</a>
Pyrene	0.105		0.00707	1	06/20/2018 17:01	<a href="#">WG1126721</a>
1-Methylnaphthalene	ND		0.0236	1	06/20/2018 17:01	<a href="#">WG1126721</a>
2-Methylnaphthalene	ND		0.0236	1	06/20/2018 17:01	<a href="#">WG1126721</a>
2-Chloronaphthalene	ND		0.0236	1	06/20/2018 17:01	<a href="#">WG1126721</a>
(S) p-Terphenyl-d14	87.7		23.0-120		06/20/2018 17:01	<a href="#">WG1126721</a>
(S) Nitrobenzene-d5	86.0		14.0-149		06/20/2018 17:01	<a href="#">WG1126721</a>
(S) 2-Fluorobiphenyl	74.5		34.0-125		06/20/2018 17:01	<a href="#">WG1126721</a>

<sup>9</sup> Sc



## Total Solids by Method 2540 G-2011

Analyte	Result %	<u>Qualifier</u>	Dilution	Analysis date / time	<u>Batch</u>
Total Solids	85.0		1	06/21/2018 16:55	<a href="#">WG1127582</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc

## Wet Chemistry by Method 9012B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Cyanide	ND		0.294	1	06/19/2018 15:05	<a href="#">WG1126232</a>

## Semi-Volatile Organic Compounds (GC) by Method 8015B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
C10-C20 Hydrocarbons	201		23.5	5	06/21/2018 23:38	<a href="#">WG1127286</a>
C20-C34 Hydrocarbons	464		23.5	5	06/21/2018 23:38	<a href="#">WG1127286</a>
(S) o-Terphenyl	115		18.0-148		06/21/2018 23:38	<a href="#">WG1127286</a>

<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Anthracene	ND		0.00706	1	06/20/2018 17:23	<a href="#">WG1126721</a>
Acenaphthene	ND		0.00706	1	06/20/2018 17:23	<a href="#">WG1126721</a>
Acenaphthylene	ND		0.00706	1	06/20/2018 17:23	<a href="#">WG1126721</a>
Benzo(a)anthracene	ND		0.00706	1	06/20/2018 17:23	<a href="#">WG1126721</a>
Benzo(a)pyrene	ND		0.00706	1	06/20/2018 17:23	<a href="#">WG1126721</a>
Benzo(b)fluoranthene	ND		0.00706	1	06/20/2018 17:23	<a href="#">WG1126721</a>
Benzo(g,h,i)perylene	ND		0.00706	1	06/20/2018 17:23	<a href="#">WG1126721</a>
Benzo(k)fluoranthene	ND		0.00706	1	06/20/2018 17:23	<a href="#">WG1126721</a>
Chrysene	ND		0.00706	1	06/20/2018 17:23	<a href="#">WG1126721</a>
Dibenz(a,h)anthracene	ND		0.00706	1	06/20/2018 17:23	<a href="#">WG1126721</a>
Fluoranthene	ND		0.00706	1	06/20/2018 17:23	<a href="#">WG1126721</a>
Fluorene	ND		0.00706	1	06/20/2018 17:23	<a href="#">WG1126721</a>
Indeno(1,2,3-cd)pyrene	ND		0.00706	1	06/20/2018 17:23	<a href="#">WG1126721</a>
Naphthalene	ND		0.0235	1	06/20/2018 17:23	<a href="#">WG1126721</a>
Phenanthrene	0.00979		0.00706	1	06/20/2018 17:23	<a href="#">WG1126721</a>
Pyrene	0.0246		0.00706	1	06/20/2018 17:23	<a href="#">WG1126721</a>
1-Methylnaphthalene	ND		0.0235	1	06/20/2018 17:23	<a href="#">WG1126721</a>
2-Methylnaphthalene	ND		0.0235	1	06/20/2018 17:23	<a href="#">WG1126721</a>
2-Chloronaphthalene	ND		0.0235	1	06/20/2018 17:23	<a href="#">WG1126721</a>
(S) p-Terphenyl-d14	84.6		23.0-120		06/20/2018 17:23	<a href="#">WG1126721</a>
(S) Nitrobenzene-d5	76.6		14.0-149		06/20/2018 17:23	<a href="#">WG1126721</a>
(S) 2-Fluorobiphenyl	72.8		34.0-125		06/20/2018 17:23	<a href="#">WG1126721</a>

<sup>9</sup> Sc



## Total Solids by Method 2540 G-2011

Analyte	Result %	<u>Qualifier</u>	Dilution	Analysis date / time	<u>Batch</u>
Total Solids	82.2		1	06/21/2018 16:55	<a href="#">WG1127582</a>

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 GI

8 Al

9 Sc

## Wet Chemistry by Method 9012B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Cyanide	ND		0.304	1	06/19/2018 15:06	<a href="#">WG1126232</a>

## Volatile Organic Compounds (GC) by Method 8015B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
TPHG C6 - C12	9.38		3.04	25	06/21/2018 21:15	<a href="#">WG1127994</a>
(S) a,a,a-Trifluorotoluene(FID)	105		77.0-120		06/21/2018 21:15	<a href="#">WG1127994</a>

## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Acetone	ND	J3	0.0304	1	06/21/2018 17:17	<a href="#">WG1127737</a>
Acrylonitrile	ND	J3	0.0152	1	06/21/2018 17:17	<a href="#">WG1127737</a>
Benzene	ND		0.00122	1	06/21/2018 17:17	<a href="#">WG1127737</a>
Bromobenzene	ND		0.0152	1	06/21/2018 17:17	<a href="#">WG1127737</a>
Bromodichloromethane	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>
Bromoform	ND		0.0304	1	06/21/2018 17:17	<a href="#">WG1127737</a>
Bromomethane	ND	J3	0.0152	1	06/21/2018 17:17	<a href="#">WG1127737</a>
n-Butylbenzene	ND		0.0152	1	06/21/2018 17:17	<a href="#">WG1127737</a>
sec-Butylbenzene	ND		0.0152	1	06/21/2018 17:17	<a href="#">WG1127737</a>
tert-Butylbenzene	ND		0.00608	1	06/21/2018 17:17	<a href="#">WG1127737</a>
Carbon tetrachloride	ND		0.00608	1	06/21/2018 17:17	<a href="#">WG1127737</a>
Chlorobenzene	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>
Chlorodibromomethane	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>
Chloroethane	ND		0.00608	1	06/21/2018 17:17	<a href="#">WG1127737</a>
Chloroform	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>
Chloromethane	ND		0.0152	1	06/21/2018 17:17	<a href="#">WG1127737</a>
2-Chlorotoluene	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>
4-Chlorotoluene	ND	J4	0.00608	1	06/21/2018 17:17	<a href="#">WG1127737</a>
1,2-Dibromo-3-Chloropropane	ND	J3	0.0304	1	06/21/2018 17:17	<a href="#">WG1127737</a>
1,2-Dibromoethane	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>
Dibromomethane	ND		0.00608	1	06/21/2018 17:17	<a href="#">WG1127737</a>
1,2-Dichlorobenzene	ND		0.00608	1	06/21/2018 17:17	<a href="#">WG1127737</a>
1,3-Dichlorobenzene	ND		0.00608	1	06/21/2018 17:17	<a href="#">WG1127737</a>
1,4-Dichlorobenzene	ND		0.00608	1	06/21/2018 17:17	<a href="#">WG1127737</a>
Dichlorodifluoromethane	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>
1,1-Dichloroethane	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>
1,2-Dichloroethane	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>
1,1-Dichloroethene	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>
cis-1,2-Dichloroethene	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>
trans-1,2-Dichloroethene	ND		0.00608	1	06/21/2018 17:17	<a href="#">WG1127737</a>
1,2-Dichloropropane	ND		0.00608	1	06/21/2018 17:17	<a href="#">WG1127737</a>
1,1-Dichloropropene	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>
1,3-Dichloropropane	ND		0.00608	1	06/21/2018 17:17	<a href="#">WG1127737</a>
cis-1,3-Dichloropropene	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>
trans-1,3-Dichloropropene	ND		0.00608	1	06/21/2018 17:17	<a href="#">WG1127737</a>
2,2-Dichloropropane	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>
Di-isopropyl ether	ND		0.00122	1	06/21/2018 17:17	<a href="#">WG1127737</a>
Ethylbenzene	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>



## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch	
Hexachloro-1,3-butadiene	ND		0.0304	1	06/21/2018 17:17	<a href="#">WG1127737</a>	<sup>1</sup> Cp
n-Hexane	ND		0.00608	1	06/21/2018 17:17	<a href="#">WG1127737</a>	<sup>2</sup> Tc
Isopropylbenzene	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>	<sup>3</sup> Ss
p-Isopropyltoluene	ND		0.00608	1	06/21/2018 17:17	<a href="#">WG1127737</a>	<sup>4</sup> Cn
2-Butanone (MEK)	ND	<u>J3</u>	0.0304	1	06/21/2018 17:17	<a href="#">WG1127737</a>	<sup>5</sup> Sr
Methylene Chloride	ND		0.0304	1	06/21/2018 17:17	<a href="#">WG1127737</a>	<sup>6</sup> Qc
4-Methyl-2-pentanone (MIBK)	ND		0.0304	1	06/21/2018 17:17	<a href="#">WG1127737</a>	<sup>7</sup> Gl
Methyl tert-butyl ether	ND		0.00122	1	06/21/2018 17:17	<a href="#">WG1127737</a>	<sup>8</sup> Al
Naphthalene	ND	<u>J3</u>	0.0152	1	06/21/2018 17:17	<a href="#">WG1127737</a>	<sup>9</sup> Sc
n-Propylbenzene	0.00703		0.00608	1	06/21/2018 17:17	<a href="#">WG1127737</a>	
Styrene	ND		0.0152	1	06/21/2018 17:17	<a href="#">WG1127737</a>	
1,1,1,2-Tetrachloroethane	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>	
1,1,2,2-Tetrachloroethane	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>	
Tetrachloroethene	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>	
Toluene	ND		0.00608	1	06/21/2018 17:17	<a href="#">WG1127737</a>	
1,2,3-Trichlorobenzene	ND	<u>J3</u>	0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>	
1,2,4-Trichlorobenzene	ND	<u>J3</u>	0.0152	1	06/21/2018 17:17	<a href="#">WG1127737</a>	
1,1,1-Trichloroethane	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>	
1,1,2-Trichloroethane	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>	
Trichloroethene	ND		0.00122	1	06/21/2018 17:17	<a href="#">WG1127737</a>	
Trichlorofluoromethane	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>	
1,2,3-Trichloropropane	ND		0.0152	1	06/21/2018 17:17	<a href="#">WG1127737</a>	
1,2,4-Trimethylbenzene	0.0209		0.00608	1	06/21/2018 17:17	<a href="#">WG1127737</a>	
1,3,5-Trimethylbenzene	ND		0.00608	1	06/21/2018 17:17	<a href="#">WG1127737</a>	
Vinyl chloride	ND		0.00304	1	06/21/2018 17:17	<a href="#">WG1127737</a>	
Xylenes, Total	0.0170		0.00791	1	06/21/2018 17:17	<a href="#">WG1127737</a>	
(S) Toluene-d8	116		80.0-120		06/21/2018 17:17	<a href="#">WG1127737</a>	
(S) Dibromofluoromethane	85.6		74.0-131		06/21/2018 17:17	<a href="#">WG1127737</a>	
(S) a,a,a-Trifluorotoluene	98.6		80.0-120		06/21/2018 17:17	<a href="#">WG1127737</a>	
(S) 4-Bromofluorobenzene	110		64.0-132		06/21/2018 17:17	<a href="#">WG1127737</a>	

## Semi-Volatile Organic Compounds (GC) by Method 8015B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
C10-C20 Hydrocarbons	1090		97.4	20	06/22/2018 23:24	<a href="#">WG1127286</a>
C20-C34 Hydrocarbons	2500		97.4	20	06/22/2018 23:24	<a href="#">WG1127286</a>
(S) o-Terphenyl	7.82	<u>J7</u>	18.0-148		06/22/2018 23:24	<a href="#">WG1127286</a>



## Total Solids by Method 2540 G-2011

Analyte	Result %	<u>Qualifier</u>	Dilution	Analysis date / time	<u>Batch</u>
Total Solids	82.5		1	06/21/2018 16:55	<a href="#">WG1127582</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc

## Wet Chemistry by Method 9012B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Cyanide	ND		0.303	1	06/19/2018 15:07	<a href="#">WG1126232</a>

## Volatile Organic Compounds (GC) by Method 8015B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
TPHG C6 - C12	ND		3.03	25	06/25/2018 15:57	<a href="#">WG1129517</a>
(S) a,a,a-Trifluorotoluene(FID)	93.1		77.0-120		06/25/2018 15:57	<a href="#">WG1129517</a>

## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Acetone	ND	J3	0.0303	1	06/21/2018 17:36	<a href="#">WG1127737</a>
Acrylonitrile	ND	J3	0.0152	1	06/21/2018 17:36	<a href="#">WG1127737</a>
Benzene	ND		0.00121	1	06/21/2018 17:36	<a href="#">WG1127737</a>
Bromobenzene	ND		0.0152	1	06/21/2018 17:36	<a href="#">WG1127737</a>
Bromodichloromethane	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>
Bromoform	ND		0.0303	1	06/21/2018 17:36	<a href="#">WG1127737</a>
Bromomethane	ND	J3	0.0152	1	06/21/2018 17:36	<a href="#">WG1127737</a>
n-Butylbenzene	ND		0.0152	1	06/21/2018 17:36	<a href="#">WG1127737</a>
sec-Butylbenzene	ND		0.0152	1	06/21/2018 17:36	<a href="#">WG1127737</a>
tert-Butylbenzene	ND		0.00606	1	06/21/2018 17:36	<a href="#">WG1127737</a>
Carbon tetrachloride	ND		0.00606	1	06/21/2018 17:36	<a href="#">WG1127737</a>
Chlorobenzene	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>
Chlorodibromomethane	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>
Chloroethane	ND		0.00606	1	06/21/2018 17:36	<a href="#">WG1127737</a>
Chloroform	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>
Chloromethane	ND		0.0152	1	06/21/2018 17:36	<a href="#">WG1127737</a>
2-Chlorotoluene	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>
4-Chlorotoluene	ND	J4	0.00606	1	06/21/2018 17:36	<a href="#">WG1127737</a>
1,2-Dibromo-3-Chloropropane	ND	J3	0.0303	1	06/21/2018 17:36	<a href="#">WG1127737</a>
1,2-Dibromoethane	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>
Dibromomethane	ND		0.00606	1	06/21/2018 17:36	<a href="#">WG1127737</a>
1,2-Dichlorobenzene	ND		0.00606	1	06/21/2018 17:36	<a href="#">WG1127737</a>
1,3-Dichlorobenzene	ND		0.00606	1	06/21/2018 17:36	<a href="#">WG1127737</a>
1,4-Dichlorobenzene	ND		0.00606	1	06/21/2018 17:36	<a href="#">WG1127737</a>
Dichlorodifluoromethane	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>
1,1-Dichloroethane	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>
1,2-Dichloroethane	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>
1,1-Dichloroethene	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>
cis-1,2-Dichloroethene	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>
trans-1,2-Dichloroethene	ND		0.00606	1	06/21/2018 17:36	<a href="#">WG1127737</a>
1,2-Dichloropropane	ND		0.00606	1	06/21/2018 17:36	<a href="#">WG1127737</a>
1,1-Dichloropropene	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>
1,3-Dichloropropane	ND		0.00606	1	06/21/2018 17:36	<a href="#">WG1127737</a>
cis-1,3-Dichloropropene	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>
trans-1,3-Dichloropropene	ND		0.00606	1	06/21/2018 17:36	<a href="#">WG1127737</a>
2,2-Dichloropropane	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>
Di-isopropyl ether	ND		0.00121	1	06/21/2018 17:36	<a href="#">WG1127737</a>
Ethylbenzene	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>



## Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch	
Hexachloro-1,3-butadiene	ND		0.0303	1	06/21/2018 17:36	<a href="#">WG1127737</a>	<sup>1</sup> Cp
n-Hexane	ND		0.00606	1	06/21/2018 17:36	<a href="#">WG1127737</a>	<sup>2</sup> Tc
Isopropylbenzene	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>	<sup>3</sup> Ss
p-Isopropyltoluene	ND		0.00606	1	06/21/2018 17:36	<a href="#">WG1127737</a>	<sup>4</sup> Cn
2-Butanone (MEK)	ND	<u>J3</u>	0.0303	1	06/21/2018 17:36	<a href="#">WG1127737</a>	<sup>5</sup> Sr
Methylene Chloride	ND		0.0303	1	06/21/2018 17:36	<a href="#">WG1127737</a>	<sup>6</sup> Qc
4-Methyl-2-pentanone (MIBK)	ND		0.0303	1	06/21/2018 17:36	<a href="#">WG1127737</a>	<sup>7</sup> Gl
Methyl tert-butyl ether	ND		0.00121	1	06/21/2018 17:36	<a href="#">WG1127737</a>	<sup>8</sup> Al
Naphthalene	ND	<u>J3</u>	0.0152	1	06/21/2018 17:36	<a href="#">WG1127737</a>	<sup>9</sup> Sc
n-Propylbenzene	ND		0.00606	1	06/21/2018 17:36	<a href="#">WG1127737</a>	
Styrene	ND		0.0152	1	06/21/2018 17:36	<a href="#">WG1127737</a>	
1,1,1,2-Tetrachloroethane	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>	
1,1,2,2-Tetrachloroethane	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>	
Tetrachloroethene	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>	
Toluene	ND		0.00606	1	06/21/2018 17:36	<a href="#">WG1127737</a>	
1,2,3-Trichlorobenzene	ND	<u>J3</u>	0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>	
1,2,4-Trichlorobenzene	ND	<u>J3</u>	0.0152	1	06/21/2018 17:36	<a href="#">WG1127737</a>	
1,1,1-Trichloroethane	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>	
1,1,2-Trichloroethane	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>	
Trichloroethene	ND		0.00121	1	06/21/2018 17:36	<a href="#">WG1127737</a>	
Trichlorofluoromethane	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>	
1,2,3-Trichloropropane	ND		0.0152	1	06/21/2018 17:36	<a href="#">WG1127737</a>	
1,2,4-Trimethylbenzene	0.00889		0.00606	1	06/21/2018 17:36	<a href="#">WG1127737</a>	
1,3,5-Trimethylbenzene	ND		0.00606	1	06/21/2018 17:36	<a href="#">WG1127737</a>	
Vinyl chloride	ND		0.00303	1	06/21/2018 17:36	<a href="#">WG1127737</a>	
Xylenes, Total	0.0115		0.00788	1	06/21/2018 17:36	<a href="#">WG1127737</a>	
(S) Toluene-d8	120		80.0-120		06/21/2018 17:36	<a href="#">WG1127737</a>	
(S) Dibromofluoromethane	77.2		74.0-131		06/21/2018 17:36	<a href="#">WG1127737</a>	
(S) a,a,a-Trifluorotoluene	101		80.0-120		06/21/2018 17:36	<a href="#">WG1127737</a>	
(S) 4-Bromofluorobenzene	114		64.0-132		06/21/2018 17:36	<a href="#">WG1127737</a>	

## Semi-Volatile Organic Compounds (GC) by Method 8015B

Analyte	Result (dry) mg/kg	Qualifier	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
C10-C20 Hydrocarbons	1090		97.0	20	06/22/2018 01:15	<a href="#">WG1127286</a>
C20-C34 Hydrocarbons	3100		97.0	20	06/22/2018 01:15	<a href="#">WG1127286</a>
(S) o-Terphenyl	125	<u>J7</u>	18.0-148		06/22/2018 01:15	<a href="#">WG1127286</a>



## Wet Chemistry by Method 4500CN E-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Cyanide	0.0917		0.0500	10	06/19/2018 12:53	<a href="#">WG1125855</a>

## Sample Narrative:

L1002426-10 WG1125855: diluted to matrix interference: sulfide

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	0.00911		0.00100	20	06/20/2018 21:25	<a href="#">WG1126718</a>
Acenaphthene	0.00545		0.00100	20	06/20/2018 21:25	<a href="#">WG1126718</a>
Acenaphthylene	0.00176		0.00100	20	06/20/2018 21:25	<a href="#">WG1126718</a>
Benzo(a)anthracene	0.00615		0.00100	20	06/20/2018 21:25	<a href="#">WG1126718</a>
Benzo(a)pyrene	0.00329		0.00100	20	06/20/2018 21:25	<a href="#">WG1126718</a>
Benzo(b)fluoranthene	0.00468		0.00100	20	06/20/2018 21:25	<a href="#">WG1126718</a>
Benzo(g,h,i)perylene	0.00429		0.00100	20	06/20/2018 21:25	<a href="#">WG1126718</a>
Benzo(k)fluoranthene	0.00152		0.00100	20	06/20/2018 21:25	<a href="#">WG1126718</a>
Chrysene	0.00882		0.00100	20	06/20/2018 21:25	<a href="#">WG1126718</a>
Dibenz(a,h)anthracene	ND		0.00100	20	06/20/2018 21:25	<a href="#">WG1126718</a>
Fluoranthene	0.0131		0.00100	20	06/20/2018 21:25	<a href="#">WG1126718</a>
Fluorene	0.0125		0.00100	20	06/20/2018 21:25	<a href="#">WG1126718</a>
Indeno(1,2,3-cd)pyrene	0.00156		0.00100	20	06/20/2018 21:25	<a href="#">WG1126718</a>
Naphthalene	ND		0.00500	20	06/20/2018 21:25	<a href="#">WG1126718</a>
Phenanthrene	ND		0.00100	20	06/20/2018 21:25	<a href="#">WG1126718</a>
Pyrene	0.0143		0.00100	20	06/20/2018 21:25	<a href="#">WG1126718</a>
1-Methylnaphthalene	ND		0.00500	20	06/20/2018 21:25	<a href="#">WG1126718</a>
2-Methylnaphthalene	ND		0.00500	20	06/20/2018 21:25	<a href="#">WG1126718</a>
2-Chloronaphthalene	ND		0.00500	20	06/20/2018 21:25	<a href="#">WG1126718</a>
(S) Nitrobenzene-d5	5.84	J7	31.0-160		06/20/2018 21:25	<a href="#">WG1126718</a>
(S) 2-Fluorobiphenyl	5.17	J7	48.0-148		06/20/2018 21:25	<a href="#">WG1126718</a>
(S) p-Terphenyl-d14	6.29	J7	37.0-146		06/20/2018 21:25	<a href="#">WG1126718</a>



## Wet Chemistry by Method 4500CN E-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Cyanide	0.0104	J3	0.00500	1	06/21/2018 09:26	<a href="#">WG1127135</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	0.000353		0.0000500	1	06/20/2018 18:53	<a href="#">WG1126718</a>
Acenaphthene	0.000273		0.0000500	1	06/20/2018 18:53	<a href="#">WG1126718</a>
Acenaphthylene	ND		0.0000500	1	06/20/2018 18:53	<a href="#">WG1126718</a>
Benzo(a)anthracene	0.0000779		0.0000500	1	06/20/2018 18:53	<a href="#">WG1126718</a>
Benzo(a)pyrene	0.0000610		0.0000500	1	06/20/2018 18:53	<a href="#">WG1126718</a>
Benzo(b)fluoranthene	0.0000958		0.0000500	1	06/20/2018 18:53	<a href="#">WG1126718</a>
Benzo(g,h,i)perylene	ND		0.0000500	1	06/20/2018 18:53	<a href="#">WG1126718</a>
Benzo(k)fluoranthene	ND		0.0000500	1	06/20/2018 18:53	<a href="#">WG1126718</a>
Chrysene	0.000112		0.0000500	1	06/20/2018 18:53	<a href="#">WG1126718</a>
Dibenz(a,h)anthracene	ND		0.0000500	1	06/20/2018 18:53	<a href="#">WG1126718</a>
Fluoranthene	0.000333		0.0000500	1	06/20/2018 18:53	<a href="#">WG1126718</a>
Fluorene	0.000703		0.0000500	1	06/20/2018 18:53	<a href="#">WG1126718</a>
Indeno(1,2,3-cd)pyrene	ND		0.0000500	1	06/20/2018 18:53	<a href="#">WG1126718</a>
Naphthalene	ND		0.000250	1	06/20/2018 18:53	<a href="#">WG1126718</a>
Phenanthrene	0.000171		0.0000500	1	06/20/2018 18:53	<a href="#">WG1126718</a>
Pyrene	0.000644		0.0000500	1	06/20/2018 18:53	<a href="#">WG1126718</a>
1-Methylnaphthalene	ND		0.000250	1	06/20/2018 18:53	<a href="#">WG1126718</a>
2-Methylnaphthalene	ND		0.000250	1	06/20/2018 18:53	<a href="#">WG1126718</a>
2-Chloronaphthalene	ND		0.000250	1	06/20/2018 18:53	<a href="#">WG1126718</a>
(S) Nitrobenzene-d5	94.2		31.0-160		06/20/2018 18:53	<a href="#">WG1126718</a>
(S) 2-Fluorobiphenyl	109		48.0-148		06/20/2018 18:53	<a href="#">WG1126718</a>
(S) p-Terphenyl-d14	103		37.0-146		06/20/2018 18:53	<a href="#">WG1126718</a>



## Wet Chemistry by Method 4500CN E-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Cyanide	ND		0.0500	10	06/19/2018 12:56	<a href="#">WG1125855</a>

## Sample Narrative:

L1002426-12 WG1125855: diluted to matrix interference: sulfide

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	0.00428		0.00100	20	06/20/2018 21:04	<a href="#">WG1126718</a>
Acenaphthene	0.00247		0.00100	20	06/20/2018 21:04	<a href="#">WG1126718</a>
Acenaphthylene	ND		0.00100	20	06/20/2018 21:04	<a href="#">WG1126718</a>
Benzo(a)anthracene	0.00255		0.00100	20	06/20/2018 21:04	<a href="#">WG1126718</a>
Benzo(a)pyrene	0.00142		0.00100	20	06/20/2018 21:04	<a href="#">WG1126718</a>
Benzo(b)fluoranthene	0.00204		0.00100	20	06/20/2018 21:04	<a href="#">WG1126718</a>
Benzo(g,h,i)perylene	0.00194		0.00100	20	06/20/2018 21:04	<a href="#">WG1126718</a>
Benzo(k)fluoranthene	ND		0.00100	20	06/20/2018 21:04	<a href="#">WG1126718</a>
Chrysene	0.00196		0.00100	20	06/20/2018 21:04	<a href="#">WG1126718</a>
Dibenz(a,h)anthracene	ND		0.00100	20	06/20/2018 21:04	<a href="#">WG1126718</a>
Fluoranthene	0.00582		0.00100	20	06/20/2018 21:04	<a href="#">WG1126718</a>
Fluorene	0.00556		0.00100	20	06/20/2018 21:04	<a href="#">WG1126718</a>
Indeno(1,2,3-cd)pyrene	ND		0.00100	20	06/20/2018 21:04	<a href="#">WG1126718</a>
Naphthalene	ND		0.00500	20	06/20/2018 21:04	<a href="#">WG1126718</a>
Phenanthrene	ND		0.00100	20	06/20/2018 21:04	<a href="#">WG1126718</a>
Pyrene	0.00595		0.00100	20	06/20/2018 21:04	<a href="#">WG1126718</a>
1-Methylnaphthalene	ND		0.00500	20	06/20/2018 21:04	<a href="#">WG1126718</a>
2-Methylnaphthalene	ND		0.00500	20	06/20/2018 21:04	<a href="#">WG1126718</a>
2-Chloronaphthalene	ND		0.00500	20	06/20/2018 21:04	<a href="#">WG1126718</a>
(S) Nitrobenzene-d5	4.61	J7	31.0-160		06/20/2018 21:04	<a href="#">WG1126718</a>
(S) 2-Fluorobiphenyl	4.68	J7	48.0-148		06/20/2018 21:04	<a href="#">WG1126718</a>
(S) p-Terphenyl-d14	4.86	J7	37.0-146		06/20/2018 21:04	<a href="#">WG1126718</a>



## Total Solids by Method 2540 G-2011

Analyte	Result %	<u>Qualifier</u>	Dilution	Analysis date / time	<u>Batch</u>
Total Solids	83.1		1	06/21/2018 16:55	<a href="#">WG1127582</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc

## Wet Chemistry by Method 9012B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Cyanide	ND		0.301	1	06/19/2018 15:12	<a href="#">WG1126232</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Anthracene	ND		0.00722	1	06/20/2018 17:45	<a href="#">WG1126721</a>
Acenaphthene	0.306		0.00722	1	06/20/2018 17:45	<a href="#">WG1126721</a>
Acenaphthylene	ND		0.00722	1	06/20/2018 17:45	<a href="#">WG1126721</a>
Benzo(a)anthracene	0.0889		0.00722	1	06/20/2018 17:45	<a href="#">WG1126721</a>
Benzo(a)pyrene	0.0567		0.00722	1	06/20/2018 17:45	<a href="#">WG1126721</a>
Benzo(b)fluoranthene	0.0608		0.00722	1	06/20/2018 17:45	<a href="#">WG1126721</a>
Benzo(g,h,i)perylene	0.0313		0.00722	1	06/20/2018 17:45	<a href="#">WG1126721</a>
Benzo(k)fluoranthene	0.0264		0.00722	1	06/20/2018 17:45	<a href="#">WG1126721</a>
Chrysene	0.0863		0.00722	1	06/20/2018 17:45	<a href="#">WG1126721</a>
Dibenz(a,h)anthracene	0.00757		0.00722	1	06/20/2018 17:45	<a href="#">WG1126721</a>
Fluoranthene	0.246		0.00722	1	06/20/2018 17:45	<a href="#">WG1126721</a>
Fluorene	0.254		0.00722	1	06/20/2018 17:45	<a href="#">WG1126721</a>
Indeno(1,2,3-cd)pyrene	0.0243		0.00722	1	06/20/2018 17:45	<a href="#">WG1126721</a>
Naphthalene	0.108		0.0241	1	06/20/2018 17:45	<a href="#">WG1126721</a>
Phenanthrene	1.01		0.00722	1	06/20/2018 17:45	<a href="#">WG1126721</a>
Pyrene	0.329		0.00722	1	06/20/2018 17:45	<a href="#">WG1126721</a>
1-Methylnaphthalene	0.342		0.0241	1	06/20/2018 17:45	<a href="#">WG1126721</a>
2-Methylnaphthalene	0.285		0.0241	1	06/20/2018 17:45	<a href="#">WG1126721</a>
2-Chloronaphthalene	ND		0.0241	1	06/20/2018 17:45	<a href="#">WG1126721</a>
(S) p-Terphenyl-d14	124	J1	23.0-120		06/20/2018 17:45	<a href="#">WG1126721</a>
(S) Nitrobenzene-d5	92.2		14.0-149		06/20/2018 17:45	<a href="#">WG1126721</a>
(S) 2-Fluorobiphenyl	93.0		34.0-125		06/20/2018 17:45	<a href="#">WG1126721</a>

## Sample Narrative:

L1002426-13 WG1126721: Surrogate high due to sample matrix



## Total Solids by Method 2540 G-2011

Analyte	Result %	<u>Qualifier</u>	Dilution	Analysis date / time	<u>Batch</u>
Total Solids	82.9		1	06/21/2018 16:55	<a href="#">WG1127582</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc

## Wet Chemistry by Method 9012B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Cyanide	ND		0.302	1	06/20/2018 13:38	<a href="#">WG1126931</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Anthracene	ND		0.00724	1	06/20/2018 18:07	<a href="#">WG1126721</a>
Acenaphthene	0.0287		0.00724	1	06/20/2018 18:07	<a href="#">WG1126721</a>
Acenaphthylene	ND		0.00724	1	06/20/2018 18:07	<a href="#">WG1126721</a>
Benzo(a)anthracene	0.00939		0.00724	1	06/20/2018 18:07	<a href="#">WG1126721</a>
Benzo(a)pyrene	ND		0.00724	1	06/20/2018 18:07	<a href="#">WG1126721</a>
Benzo(b)fluoranthene	0.00752		0.00724	1	06/20/2018 18:07	<a href="#">WG1126721</a>
Benzo(g,h,i)perylene	ND		0.00724	1	06/20/2018 18:07	<a href="#">WG1126721</a>
Benzo(k)fluoranthene	ND		0.00724	1	06/20/2018 18:07	<a href="#">WG1126721</a>
Chrysene	0.0133		0.00724	1	06/20/2018 18:07	<a href="#">WG1126721</a>
Dibenz(a,h)anthracene	ND		0.00724	1	06/20/2018 18:07	<a href="#">WG1126721</a>
Fluoranthene	0.0393		0.00724	1	06/20/2018 18:07	<a href="#">WG1126721</a>
Fluorene	0.0444		0.00724	1	06/20/2018 18:07	<a href="#">WG1126721</a>
Indeno(1,2,3-cd)pyrene	ND		0.00724	1	06/20/2018 18:07	<a href="#">WG1126721</a>
Naphthalene	ND		0.0241	1	06/20/2018 18:07	<a href="#">WG1126721</a>
Phenanthrene	0.279		0.00724	1	06/20/2018 18:07	<a href="#">WG1126721</a>
Pyrene	0.0947		0.00724	1	06/20/2018 18:07	<a href="#">WG1126721</a>
1-Methylnaphthalene	0.0315		0.0241	1	06/20/2018 18:07	<a href="#">WG1126721</a>
2-Methylnaphthalene	0.0316		0.0241	1	06/20/2018 18:07	<a href="#">WG1126721</a>
2-Chloronaphthalene	ND		0.0241	1	06/20/2018 18:07	<a href="#">WG1126721</a>
(S) p-Terphenyl-d14	82.8		23.0-120		06/20/2018 18:07	<a href="#">WG1126721</a>
(S) Nitrobenzene-d5	85.3		14.0-149		06/20/2018 18:07	<a href="#">WG1126721</a>
(S) 2-Fluorobiphenyl	77.7		34.0-125		06/20/2018 18:07	<a href="#">WG1126721</a>



## Total Solids by Method 2540 G-2011

Analyte	Result %	<u>Qualifier</u>	Dilution	Analysis date / time	<u>Batch</u>
Total Solids	81.4		1	06/22/2018 15:21	<a href="#">WG1127585</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc

## Wet Chemistry by Method 9012B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Cyanide	ND		0.307	1	06/20/2018 13:40	<a href="#">WG1126931</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Anthracene	ND		0.147	20	06/21/2018 09:08	<a href="#">WG1126721</a>
Acenaphthene	0.416		0.00737	1	06/20/2018 18:29	<a href="#">WG1126721</a>
Acenaphthylene	0.238		0.00737	1	06/20/2018 18:29	<a href="#">WG1126721</a>
Benzo(a)anthracene	0.517		0.00737	1	06/20/2018 18:29	<a href="#">WG1126721</a>
Benzo(a)pyrene	0.400		0.00737	1	06/20/2018 18:29	<a href="#">WG1126721</a>
Benzo(b)fluoranthene	0.579		0.00737	1	06/20/2018 18:29	<a href="#">WG1126721</a>
Benzo(g,h,i)perylene	0.236		0.00737	1	06/20/2018 18:29	<a href="#">WG1126721</a>
Benzo(k)fluoranthene	0.150		0.00737	1	06/20/2018 18:29	<a href="#">WG1126721</a>
Chrysene	0.624		0.00737	1	06/20/2018 18:29	<a href="#">WG1126721</a>
Dibenz(a,h)anthracene	0.0701		0.00737	1	06/20/2018 18:29	<a href="#">WG1126721</a>
Fluoranthene	1.94		0.147	20	06/21/2018 09:08	<a href="#">WG1126721</a>
Fluorene	1.73		0.00737	1	06/20/2018 18:29	<a href="#">WG1126721</a>
Indeno(1,2,3-cd)pyrene	0.207		0.00737	1	06/20/2018 18:29	<a href="#">WG1126721</a>
Naphthalene	0.544		0.0246	1	06/20/2018 18:29	<a href="#">WG1126721</a>
Phenanthrene	6.86		0.147	20	06/21/2018 09:08	<a href="#">WG1126721</a>
Pyrene	0.418		0.00737	1	06/20/2018 18:29	<a href="#">WG1126721</a>
1-Methylnaphthalene	0.685		0.0246	1	06/20/2018 18:29	<a href="#">WG1126721</a>
2-Methylnaphthalene	0.833		0.0246	1	06/20/2018 18:29	<a href="#">WG1126721</a>
2-Chloronaphthalene	ND		0.0246	1	06/20/2018 18:29	<a href="#">WG1126721</a>
(S) p-Terphenyl-d14	85.0	J7	23.0-120		06/21/2018 09:08	<a href="#">WG1126721</a>
(S) p-Terphenyl-d14	49.4		23.0-120		06/20/2018 18:29	<a href="#">WG1126721</a>
(S) Nitrobenzene-d5	95.0		14.0-149		06/20/2018 18:29	<a href="#">WG1126721</a>
(S) Nitrobenzene-d5	82.2	J7	14.0-149		06/21/2018 09:08	<a href="#">WG1126721</a>
(S) 2-Fluorobiphenyl	87.0	J7	34.0-125		06/21/2018 09:08	<a href="#">WG1126721</a>
(S) 2-Fluorobiphenyl	77.7		34.0-125		06/20/2018 18:29	<a href="#">WG1126721</a>



## Total Solids by Method 2540 G-2011

Analyte	Result %	<u>Qualifier</u>	Dilution	Analysis date / time	<u>Batch</u>
Total Solids	85.7		1	06/22/2018 15:21	<a href="#">WG1127585</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc

## Wet Chemistry by Method 9012B

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Cyanide	1.03	<a href="#">J3 J5</a>	0.292	1	06/20/2018 13:46	<a href="#">WG1126931</a>

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result (dry) mg/kg	<u>Qualifier</u>	RDL (dry) mg/kg	Dilution	Analysis date / time	<u>Batch</u>
Anthracene	0.0577		0.00701	1	06/20/2018 18:50	<a href="#">WG1126721</a>
Acenaphthene	0.0157		0.00701	1	06/20/2018 18:50	<a href="#">WG1126721</a>
Acenaphthylene	0.0134		0.00701	1	06/20/2018 18:50	<a href="#">WG1126721</a>
Benzo(a)anthracene	0.194		0.00701	1	06/20/2018 18:50	<a href="#">WG1126721</a>
Benzo(a)pyrene	0.253		0.00701	1	06/20/2018 18:50	<a href="#">WG1126721</a>
Benzo(b)fluoranthene	0.358		0.00701	1	06/20/2018 18:50	<a href="#">WG1126721</a>
Benzo(g,h,i)perylene	0.270		0.00701	1	06/20/2018 18:50	<a href="#">WG1126721</a>
Benzo(k)fluoranthene	0.123		0.00701	1	06/20/2018 18:50	<a href="#">WG1126721</a>
Chrysene	0.168		0.00701	1	06/20/2018 18:50	<a href="#">WG1126721</a>
Dibenz(a,h)anthracene	0.0464		0.00701	1	06/20/2018 18:50	<a href="#">WG1126721</a>
Fluoranthene	0.505		0.00701	1	06/20/2018 18:50	<a href="#">WG1126721</a>
Fluorene	0.0146		0.00701	1	06/20/2018 18:50	<a href="#">WG1126721</a>
Indeno(1,2,3-cd)pyrene	0.176		0.00701	1	06/20/2018 18:50	<a href="#">WG1126721</a>
Naphthalene	0.0349		0.0234	1	06/20/2018 18:50	<a href="#">WG1126721</a>
Phenanthrene	0.253		0.00701	1	06/20/2018 18:50	<a href="#">WG1126721</a>
Pyrene	0.345		0.00701	1	06/20/2018 18:50	<a href="#">WG1126721</a>
1-Methylnaphthalene	0.0246		0.0234	1	06/20/2018 18:50	<a href="#">WG1126721</a>
2-Methylnaphthalene	0.0384		0.0234	1	06/20/2018 18:50	<a href="#">WG1126721</a>
2-Chloronaphthalene	ND		0.0234	1	06/20/2018 18:50	<a href="#">WG1126721</a>
(S) p-Terphenyl-d14	86.4		23.0-120		06/20/2018 18:50	<a href="#">WG1126721</a>
(S) Nitrobenzene-d5	65.2		14.0-149		06/20/2018 18:50	<a href="#">WG1126721</a>
(S) 2-Fluorobiphenyl	64.9		34.0-125		06/20/2018 18:50	<a href="#">WG1126721</a>



## Wet Chemistry by Method 4500CN E-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Cyanide	0.0205		0.00500	1	06/19/2018 12:57	<a href="#">WG1125855</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	0.000244		0.0000500	1	06/21/2018 11:48	<a href="#">WG1126718</a>
Acenaphthene	0.000462		0.0000500	1	06/21/2018 11:48	<a href="#">WG1126718</a>
Acenaphthylene	ND		0.0000500	1	06/21/2018 11:48	<a href="#">WG1126718</a>
Benzo(a)anthracene	ND		0.0000500	1	06/21/2018 11:48	<a href="#">WG1126718</a>
Benzo(a)pyrene	ND		0.0000500	1	06/21/2018 11:48	<a href="#">WG1126718</a>
Benzo(b)fluoranthene	ND		0.0000500	1	06/21/2018 11:48	<a href="#">WG1126718</a>
Benzo(g,h,i)perylene	ND		0.0000500	1	06/21/2018 11:48	<a href="#">WG1126718</a>
Benzo(k)fluoranthene	ND		0.0000500	1	06/21/2018 11:48	<a href="#">WG1126718</a>
Chrysene	ND		0.0000500	1	06/21/2018 11:48	<a href="#">WG1126718</a>
Dibenz(a,h)anthracene	ND		0.0000500	1	06/21/2018 11:48	<a href="#">WG1126718</a>
Fluoranthene	0.000174		0.0000500	1	06/21/2018 11:48	<a href="#">WG1126718</a>
Fluorene	0.000448		0.0000500	1	06/21/2018 11:48	<a href="#">WG1126718</a>
Indeno(1,2,3-cd)pyrene	ND		0.0000500	1	06/21/2018 11:48	<a href="#">WG1126718</a>
Naphthalene	0.000345		0.000250	1	06/21/2018 11:48	<a href="#">WG1126718</a>
Phenanthrene	0.00160		0.0000500	1	06/21/2018 11:48	<a href="#">WG1126718</a>
Pyrene	0.000150		0.0000500	1	06/21/2018 11:48	<a href="#">WG1126718</a>
1-Methylnaphthalene	0.00117		0.000250	1	06/21/2018 11:48	<a href="#">WG1126718</a>
2-Methylnaphthalene	0.000485		0.000250	1	06/21/2018 11:48	<a href="#">WG1126718</a>
2-Chloronaphthalene	ND		0.000250	1	06/21/2018 11:48	<a href="#">WG1126718</a>
(S) Nitrobenzene-d5	117		31.0-160		06/21/2018 11:48	<a href="#">WG1126718</a>
(S) 2-Fluorobiphenyl	74.7		48.0-148		06/21/2018 11:48	<a href="#">WG1126718</a>
(S) p-Terphenyl-d14	103		37.0-146		06/21/2018 11:48	<a href="#">WG1126718</a>



## Wet Chemistry by Method 4500CN E-2011

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Cyanide	0.0118		0.00500	1	06/19/2018 12:58	<a href="#">WG1125855</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc

## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch
Anthracene	0.00394		0.000515	10.3	06/20/2018 20:20	<a href="#">WG1126718</a>
Acenaphthene	0.00235		0.000515	10.3	06/20/2018 20:20	<a href="#">WG1126718</a>
Acenaphthylene	0.00156		0.000515	10.3	06/20/2018 20:20	<a href="#">WG1126718</a>
Benzo(a)anthracene	0.00103		0.000515	10.3	06/20/2018 20:20	<a href="#">WG1126718</a>
Benzo(a)pyrene	0.000709		0.000515	10.3	06/20/2018 20:20	<a href="#">WG1126718</a>
Benzo(b)fluoranthene	0.00117		0.000515	10.3	06/20/2018 20:20	<a href="#">WG1126718</a>
Benzo(g,h,i)perylene	ND		0.000515	10.3	06/20/2018 20:20	<a href="#">WG1126718</a>
Benzo(k)fluoranthene	ND		0.000515	10.3	06/20/2018 20:20	<a href="#">WG1126718</a>
Chrysene	0.00232		0.000515	10.3	06/20/2018 20:20	<a href="#">WG1126718</a>
Dibenz(a,h)anthracene	ND		0.000515	10.3	06/20/2018 20:20	<a href="#">WG1126718</a>
Fluoranthene	0.00541		0.000515	10.3	06/20/2018 20:20	<a href="#">WG1126718</a>
Fluorene	0.00556		0.000515	10.3	06/20/2018 20:20	<a href="#">WG1126718</a>
Indeno(1,2,3-cd)pyrene	ND		0.000515	10.3	06/20/2018 20:20	<a href="#">WG1126718</a>
Naphthalene	ND		0.00258	10.3	06/20/2018 20:20	<a href="#">WG1126718</a>
Phenanthrene	0.0234		0.000515	10.3	06/20/2018 20:20	<a href="#">WG1126718</a>
Pyrene	0.00905		0.000515	10.3	06/20/2018 20:20	<a href="#">WG1126718</a>
1-Methylnaphthalene	0.00439		0.00258	10.3	06/20/2018 20:20	<a href="#">WG1126718</a>
2-Methylnaphthalene	0.00394		0.00258	10.3	06/20/2018 20:20	<a href="#">WG1126718</a>
2-Chloronaphthalene	ND		0.00258	10.3	06/20/2018 20:20	<a href="#">WG1126718</a>
(S) Nitrobenzene-d5	100		31.0-160		06/20/2018 20:20	<a href="#">WG1126718</a>
(S) 2-Fluorobiphenyl	88.6		48.0-148		06/20/2018 20:20	<a href="#">WG1126718</a>
(S) p-Terphenyl-d14	88.3		37.0-146		06/20/2018 20:20	<a href="#">WG1126718</a>



## Semi Volatile Organic Compounds (GC/MS) by Method 8270C-SIM

Analyte	Result mg/l	Qualifier	RDL mg/l	Dilution	Analysis date / time	Batch	
Anthracene	0.00570		0.000750	15	06/21/2018 12:09	WG1126718	<sup>1</sup> Cp
Acenaphthene	0.00267		0.000750	15	06/21/2018 12:09	WG1126718	<sup>2</sup> Tc
Acenaphthylene	0.00227		0.000750	15	06/21/2018 12:09	WG1126718	<sup>3</sup> Ss
Benzo(a)anthracene	0.00124		0.000750	15	06/21/2018 12:09	WG1126718	<sup>4</sup> Cn
Benzo(a)pyrene	ND		0.000750	15	06/21/2018 12:09	WG1126718	<sup>5</sup> Sr
Benzo(b)fluoranthene	0.00104		0.000750	15	06/21/2018 12:09	WG1126718	<sup>6</sup> Qc
Benzo(g,h,i)perylene	ND		0.000750	15	06/21/2018 12:09	WG1126718	<sup>7</sup> Gl
Benzo(k)fluoranthene	ND		0.000750	15	06/21/2018 12:09	WG1126718	<sup>8</sup> Al
Chrysene	0.00173		0.000750	15	06/21/2018 12:09	WG1126718	<sup>9</sup> Sc
Dibenz(a,h)anthracene	ND		0.000750	15	06/21/2018 12:09	WG1126718	
Fluoranthene	0.00691		0.000750	15	06/21/2018 12:09	WG1126718	
Fluorene	0.00778		0.000750	15	06/21/2018 12:09	WG1126718	
Indeno(1,2,3-cd)pyrene	ND		0.000750	15	06/21/2018 12:09	WG1126718	
Naphthalene	0.00380	B	0.00375	15	06/21/2018 12:09	WG1126718	
Phenanthrene	0.0394		0.000750	15	06/21/2018 12:09	WG1126718	
Pyrene	0.0116		0.000750	15	06/21/2018 12:09	WG1126718	
1-Methylnaphthalene	0.00453		0.00375	15	06/21/2018 12:09	WG1126718	
2-Methylnaphthalene	0.00433		0.00375	15	06/21/2018 12:09	WG1126718	
2-Chloronaphthalene	ND		0.00375	15	06/21/2018 12:09	WG1126718	
(S) Nitrobenzene-d5	64.0		31.0-160		06/21/2018 12:09	WG1126718	
(S) 2-Fluorobiphenyl	36.0		48.0-148		06/21/2018 12:09	WG1126718	
(S) p-Terphenyl-d14	31.7		37.0-146		06/21/2018 12:09	WG1126718	

WG1127580

Total Solids by Method 2540 G-2011

## QUALITY CONTROL SUMMARY

L1002426-01

ONE LAB. NATIONWIDE.



## Method Blank (MB)

(MB) R3320322-1 06/22/18 14:40

Analyte	MB Result %	<u>MB Qualifier</u>	MB MDL %	MB RDL %
Total Solids	0.000			

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss<sup>4</sup>Cn<sup>5</sup>Sr<sup>6</sup>Qc<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc

## L1002411-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1002411-02 06/22/18 14:40 • (DUP) R3320322-3 06/22/18 14:40

Analyte	Original Result %	DUP Result %	Dilution %	DUP RPD %	<u>DUP Qualifier</u>	DUP RPD Limits %
Total Solids	81.8	83.9	1	2.53		5

## Laboratory Control Sample (LCS)

(LCS) R3320322-2 06/22/18 14:40

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Total Solids	50.0	50.0	100	85.0-115	

<sup>9</sup>Sc

ACCOUNT:

TTL Associates - Toledo, OH

PROJECT:

10835.15

SDG:

L1002426

DATE/TIME:

06/26/18 12:27

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WG1127582

Total Solids by Method 2540 G-2011

## QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

[L1002426-02,03,04,05,06,07,08,09,13,14](#)

## Method Blank (MB)

(MB) R3320054-1 06/21/18 16:55

Analyte	MB Result %	<u>MB Qualifier</u>	MB MDL %	MB RDL %
Total Solids	0.000			

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss<sup>4</sup>Cn<sup>5</sup>Sr<sup>6</sup>Qc<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc

## L1002426-09 Original Sample (OS) • Duplicate (DUP)

(OS) L1002426-09 06/21/18 16:55 • (DUP) R3320054-3 06/21/18 16:55

Analyte	Original Result %	DUP Result %	Dilution %	DUP RPD %	<u>DUP Qualifier</u>	DUP RPD Limits %
Total Solids	82.5	83.6	1	1.37		5

## Laboratory Control Sample (LCS)

(LCS) R3320054-2 06/21/18 16:55

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	<u>LCS Qualifier</u>
Total Solids	50.0	50.0	100	85.0-115	

<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc

ACCOUNT:

TTL Associates - Toledo, OH

PROJECT:

10835.15

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L1002426

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WG1127585

Total Solids by Method 2540 G-2011

## QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.



L1002426-15,16

## Method Blank (MB)

(MB) R3320325-1 06/22/18 15:21

	MB Result	<u>MB Qualifier</u>	MB MDL	MB RDL
Analyte	%		%	%
Total Solids	0.000			

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss<sup>4</sup>Cn<sup>5</sup>Sr<sup>6</sup>Qc<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc

## L1002429-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1002429-04 06/22/18 15:21 • (DUP) R3320325-3 06/22/18 15:21

	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
Analyte	%	%		%		%
Total Solids	98.8	98.4	1	0.432		5

## Laboratory Control Sample (LCS)

(LCS) R3320325-2 06/22/18 15:21

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	<u>LCS Qualifier</u>
Analyte	%	%	%	%	
Total Solids	50.0	50.0	100	85.0-115	

<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc

ACCOUNT:

TTL Associates - Toledo, OH

PROJECT:

10835.15

SDG:

L1002426

DATE/TIME:

06/26/18 12:27

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## Method Blank (MB)

(MB) R3319036-1 06/19/18 12:40

Analyte	MB Result mg/l	<u>MB Qualifier</u>	MB MDL mg/l	MB RDL mg/l
Cyanide	U		0.00180	0.00500

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss<sup>4</sup>Cn<sup>5</sup>Sr<sup>6</sup>Qc<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc

## L1002245-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1002245-02 06/19/18 12:46 • (DUP) R3319036-4 06/19/18 12:47

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	<u>DUP Qualifier</u>	DUP RPD Limits %
Cyanide	ND	0.000	1	0.000		20

## Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3319036-7 06/19/18 13:01

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	<u>DUP Qualifier</u>	DUP RPD Limits %
Cyanide	0.000	1	0.000		20	

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3319036-2 06/19/18 12:41 • (LCSD) R3319036-3 06/19/18 12:42

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD	RPD Limits
Cyanide	0.100	0.0915	0.0929	91.5	92.9	85.0-115			1.52	20

## L1002426-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1002426-10 06/19/18 12:53 • (MS) R3319036-5 06/19/18 12:54 • (MSD) R3319036-6 06/19/18 12:55

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD	RPD Limits
Cyanide	0.100	0.0917	0.973	0.950	88.1	85.8	10	75.0-125			2.39	20

## Sample Narrative:

OS: diluted to matrix interference: sulfide

L1002426-11

## Method Blank (MB)

(MB) R3319644-1 06/21/18 09:08

Analyte	MB Result	<u>MB Qualifier</u>	MB MDL	MB RDL
	mg/l		mg/l	mg/l
Cyanide	U		0.00180	0.00500

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss<sup>4</sup>Cn<sup>5</sup>Sr<sup>6</sup>Qc<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc

## L1002247-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1002247-02 06/21/18 09:16 • (DUP) R3319644-4 06/21/18 09:17

Analyte	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
	mg/l	mg/l		%		%
Cyanide	ND	0.000	1	0.000		20

## L1002725-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1002725-02 06/21/18 09:34 • (DUP) R3319644-7 06/21/18 09:35

Analyte	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
	mg/l	mg/l		%		%
Cyanide	0.00887	0.0329	1	115	J3	20

<sup>7</sup>Gl<sup>8</sup>Al

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3319644-2 06/21/18 09:09 • (LCSD) R3319644-3 06/21/18 09:10

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD	RPD Limits
	mg/l	mg/l	mg/l	%	%	%			%	%
Cyanide	0.100	0.0970	0.0944	97.0	94.4	85.0-115			2.72	20

## L1002426-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1002426-11 06/21/18 09:26 • (MS) R3319644-5 06/21/18 09:27 • (MSD) R3319644-6 06/21/18 09:28

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Cyanide	0.100	0.0104	0.111	0.0890	101	78.6	1	75.0-125	J3		22.0	20

<sup>9</sup>Sc

L1002426-03,04,05,06,07,08,09,13

## Method Blank (MB)

(MB) R3319071-1 06/19/18 14:29

Analyte	MB Result mg/kg	<u>MB Qualifier</u>	MB MDL mg/kg	MB RDL mg/kg
Cyanide	U		0.0390	0.250

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss<sup>4</sup>Cn<sup>5</sup>Sr<sup>6</sup>Qc<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3319071-2 06/19/18 14:30 • (LCSD) R3319071-3 06/19/18 14:31

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Cyanide	2.50	2.55	2.37	102	94.7	50.0-150			7.46	20

## L1002426-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1002426-09 06/19/18 15:07 • (MS) R3319071-6 06/19/18 15:10 • (MSD) R3319071-7 06/19/18 15:11

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Cyanide	2.02	ND	1.91	1.70	85.8	75.6	1	75.0-125			11.4	20



L1002426-14,15,16

## Method Blank (MB)

(MB) R3319398-1 06/20/18 13:31

Analyte	MB Result	<u>MB Qualifier</u>	MB MDL	MB RDL
	mg/kg		mg/kg	mg/kg
Cyanide	U		0.0390	0.250

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss<sup>4</sup>Cn<sup>5</sup>Sr<sup>6</sup>Qc<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc

## L1002426-14 Original Sample (OS) • Duplicate (DUP)

(OS) L1002426-14 06/20/18 13:38 • (DUP) R3319398-4 06/20/18 13:39

Analyte	Original Result (dry)	DUP Result (dry)	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
	mg/kg	mg/kg		%		%
Cyanide	ND	0.266	1	0.000		20

## L1002746-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1002746-01 06/20/18 13:55 • (DUP) R3319398-7 06/20/18 13:58

Analyte	Original Result	DUP Result	Dilution	DUP RPD	<u>DUP Qualifier</u>	DUP RPD Limits
	mg/kg	mg/kg		%		%
Cyanide	ND	0.0660	1	200	J P1	20

<sup>7</sup>Gl<sup>8</sup>Al

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3319398-2 06/20/18 13:32 • (LCSD) R3319398-3 06/20/18 13:33

Analyte	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Cyanide	2.50	2.45	2.23	98.0	89.3	50.0-150			9.25	20

## L1002426-16 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1002426-16 06/20/18 13:46 • (MS) R3319398-5 06/20/18 13:47 • (MSD) R3319398-6 06/20/18 13:48

Analyte	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD	RPD Limits
	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Cyanide	1.95	1.03	4.58	3.22	182	112	1	75.0-125	E J5	J3	35.0	20

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss<sup>4</sup>Cn<sup>5</sup>Sr<sup>6</sup>Qc<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc

WG1127994

Volatile Organic Compounds (GC) by Method 8015B

## QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

L1002426-01,02,03,08

## Method Blank (MB)

(MB) R3320233-4 06/21/18 18:54

Analyte	MB Result mg/kg	<u>MB Qualifier</u>	MB MDL mg/kg	MB RDL mg/kg
TPHG C6 - C12	U		0.0339	0.100
(S) <i>a,a,a-Trifluorotoluene(FID)</i>	104			77.0-120

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss<sup>4</sup>Cn<sup>5</sup>Sr<sup>6</sup>Qc<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3320233-2 06/21/18 17:49 • (LCSD) R3320233-3 06/21/18 18:11

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
TPHG C6 - C12	5.50	6.38	6.25	116	114	70.0-133			2.02	20
(S) <i>a,a,a-Trifluorotoluene(FID)</i>			106	105		77.0-120				



## Method Blank (MB)

(MB) R3320729-2 06/25/18 11:52

Analyte	MB Result mg/kg	<u>MB Qualifier</u>	MB MDL mg/kg	MB RDL mg/kg
TPHG C6 - C12	U		0.0339	0.100
(S) <i>a,a,a-Trifluorotoluene(FID)</i>	92.5			77.0-120

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss<sup>4</sup>Cn<sup>5</sup>Sr<sup>6</sup>Qc<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3320729-1 06/25/18 11:04 • (LCSD) R3320729-3 06/25/18 09:25

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD	RPD Limits
TPHG C6 - C12	5.50	4.64	4.68	84.4	85.1	70.0-133			0.808	20
(S) <i>a,a,a-Trifluorotoluene(FID)</i>			95.7	96.0		77.0-120				

## L1002426-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1002426-09 06/25/18 15:57 • (MS) R3320729-4 06/25/18 16:22 • (MSD) R3320729-5 06/25/18 16:46

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD	RPD Limits
TPHG C6 - C12	6.67	ND	129	133	77.2	79.7	25	10.0-146			3.24	30
(S) <i>a,a,a-Trifluorotoluene(FID)</i>				96.1	96.5			77.0-120				

L1002426-01,02,03

## Method Blank (MB)

(MB) R3320162-3 06/21/18 10:19

Analyte	MB Result mg/kg	<u>MB Qualifier</u>	MB MDL mg/kg	MB RDL mg/kg
Benzene	U		0.000400	0.00100
Ethylbenzene	U		0.000530	0.00250
Toluene	U		0.00125	0.00500
Xylenes, Total	U		0.00478	0.00650
(S) Toluene-d8	110		80.0-120	
(S) Dibromofluoromethane	104		74.0-131	
(S) a,a,a-Trifluorotoluene	103		80.0-120	
(S) 4-Bromofluorobenzene	101		64.0-132	

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss<sup>4</sup>Cn<sup>5</sup>Sr<sup>6</sup>Qc<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3320162-1 06/21/18 09:04 • (LCSD) R3320162-2 06/21/18 09:23

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Benzene	0.125	0.125	0.124	100	98.8	71.0-124			1.44	20
Ethylbenzene	0.125	0.131	0.129	105	103	77.0-120			1.73	20
Toluene	0.125	0.132	0.131	105	105	70.0-120			0.692	20
Xylenes, Total	0.375	0.340	0.337	90.7	89.9	77.0-120			0.886	20
(S) Toluene-d8				106	106	80.0-120				
(S) Dibromofluoromethane				107	103	74.0-131				
(S) a,a,a-Trifluorotoluene				107	106	80.0-120				
(S) 4-Bromofluorobenzene				95.4	96.9	64.0-132				

<sup>9</sup>Sc

## L1003171-10 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1003171-10 06/21/18 16:46 • (MS) R3320162-4 06/21/18 18:22 • (MSD) R3320162-5 06/21/18 18:41

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	MSD Rec. %	Dilution %	Rec. Limits %	<u>MS Qualifier</u>	<u>MSD Qualifier</u>	RPD %	RPD Limits %
Benzene	0.125	ND	0.0535	0.0994	42.1	78.8	1	13.0-146	J3	60.1	27
Ethylbenzene	0.125	ND	0.0526	0.103	41.1	81.1	1	10.0-147	J3	64.5	31
Toluene	0.125	ND	0.0569	0.111	44.3	87.8	1	10.0-144	J3	64.6	28
Xylenes, Total	0.375	ND	0.151	0.277	38.8	72.5	1	10.0-150	J3	59.1	31
(S) Toluene-d8				108	110		80.0-120				
(S) Dibromofluoromethane				100	97.7		74.0-131				
(S) a,a,a-Trifluorotoluene				101	101		80.0-120				
(S) 4-Bromofluorobenzene				97.6	99.9		64.0-132				

<sup>9</sup>Sc



## Method Blank (MB)

(MB) R3319831-3 06/21/18 10:21

Analyte	MB Result mg/kg	<u>MB Qualifier</u>	MB MDL mg/kg	MB RDL mg/kg	
Acetone	U		0.0137	0.0250	<sup>1</sup> Cp
Acrylonitrile	U		0.00190	0.0125	<sup>2</sup> Tc
Benzene	U		0.000400	0.00100	<sup>3</sup> Ss
Bromobenzene	U		0.00105	0.0125	<sup>4</sup> Cn
Bromodichloromethane	U		0.000788	0.00250	<sup>5</sup> Sr
Bromoform	U		0.00598	0.0250	<sup>6</sup> Qc
Bromomethane	U		0.00370	0.0125	<sup>7</sup> Gl
n-Butylbenzene	U		0.00384	0.0125	<sup>8</sup> Al
sec-Butylbenzene	U		0.00253	0.0125	<sup>9</sup> Sc
tert-Butylbenzene	U		0.00155	0.00500	
Carbon tetrachloride	U		0.00108	0.00500	
Chlorobenzene	U		0.000573	0.00250	
Chlorodibromomethane	U		0.000450	0.00250	
Chloroethane	U		0.00108	0.00500	
Chloroform	U		0.000415	0.00250	
Chloromethane	U		0.00139	0.0125	
2-Chlorotoluene	U		0.000920	0.00250	
4-Chlorotoluene	U		0.00113	0.00500	
1,2-Dibromo-3-Chloropropane	U		0.00510	0.0250	
1,2-Dibromoethane	U		0.000525	0.00250	
Dibromomethane	U		0.00100	0.00500	
1,2-Dichlorobenzene	U		0.00145	0.00500	
1,3-Dichlorobenzene	U		0.00170	0.00500	
1,4-Dichlorobenzene	U		0.00197	0.00500	
Dichlorodifluoromethane	U		0.000818	0.00250	
1,1-Dichloroethane	U		0.000575	0.00250	
1,2-Dichloroethane	U		0.000475	0.00250	
1,1-Dichloroethene	U		0.000500	0.00250	
cis-1,2-Dichloroethene	U		0.000690	0.00250	
trans-1,2-Dichloroethene	U		0.00143	0.00500	
1,2-Dichloropropane	U		0.00127	0.00500	
1,1-Dichloropropene	U		0.000700	0.00250	
1,3-Dichloropropane	U		0.00175	0.00500	
cis-1,3-Dichloropropene	U		0.000678	0.00250	
trans-1,3-Dichloropropene	U		0.00153	0.00500	
2,2-Dichloropropane	U		0.000793	0.00250	
Di-isopropyl ether	U		0.000350	0.00100	
Ethylbenzene	U		0.000530	0.00250	
Hexachloro-1,3-butadiene	U		0.0127	0.0250	
n-Hexane	U		0.00106	0.00500	



## Method Blank (MB)

(MB) R3319831-3 06/21/18 10:21

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg	1 Cp
Isopropylbenzene	U		0.000863	0.00250	
p-Isopropyltoluene	U		0.00233	0.00500	
2-Butanone (MEK)	U		0.0125	0.0250	
Methylene Chloride	U		0.00664	0.0250	
4-Methyl-2-pentanone (MIBK)	U		0.0100	0.0250	
Methyl tert-butyl ether	U		0.000295	0.00100	
Naphthalene	U		0.00312	0.0125	
n-Propylbenzene	U		0.00118	0.00500	
Styrene	U		0.00273	0.0125	
1,1,1,2-Tetrachloroethane	U		0.000500	0.00250	
1,1,2,2-Tetrachloroethane	U		0.000390	0.00250	
Tetrachloroethene	U		0.000700	0.00250	
Toluene	U		0.00125	0.00500	
1,2,3-Trichlorobenzene	U		0.000625	0.00250	
1,2,4-Trichlorobenzene	U		0.00482	0.0125	
1,1,1-Trichloroethane	U		0.000275	0.00250	
1,1,2-Trichloroethane	U		0.000883	0.00250	
Trichloroethene	U		0.000400	0.00100	
Trichlorofluoromethane	U		0.000500	0.00250	
1,2,3-Trichloropropane	U		0.00510	0.0125	
1,2,4-Trimethylbenzene	U		0.00116	0.00500	
1,3,5-Trimethylbenzene	U		0.00108	0.00500	
Vinyl chloride	U		0.000683	0.00250	
Xylenes, Total	U		0.00478	0.00650	
(S) Toluene-d8	115		80.0-120		
(S) Dibromofluoromethane	87.8		74.0-131		
(S) a,a,a-Trifluorotoluene	98.6		80.0-120		
(S) 4-Bromofluorobenzene	104		64.0-132		

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3319831-1 06/21/18 09:01 • (LCSD) R3319831-2 06/21/18 09:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Acetone	0.625	0.319	0.654	51.1	105	11.0-160	J3	J3	68.8	23
Acrylonitrile	0.625	0.523	0.734	83.7	118	61.0-143	J3	J3	33.7	20
Benzene	0.125	0.118	0.120	94.5	96.1	71.0-124			1.63	20
Bromobenzene	0.125	0.120	0.126	95.6	101	78.0-120			5.27	20
Bromodichloromethane	0.125	0.108	0.111	86.3	89.0	75.0-120			3.12	20

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## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3319831-1 06/21/18 09:01 • (LCSD) R3319831-2 06/21/18 09:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromoform	0.125	0.135	0.146	108	116	65.0-133			7.21	20
Bromomethane	0.125	0.154	0.119	123	95.6	26.0-160	J3		25.0	20
n-Butylbenzene	0.125	0.105	0.118	84.1	94.3	73.0-126			11.4	20
sec-Butylbenzene	0.125	0.117	0.125	93.5	100	75.0-121			6.75	20
tert-Butylbenzene	0.125	0.140	0.148	112	119	74.0-122			5.74	20
Carbon tetrachloride	0.125	0.0946	0.0954	75.6	76.3	66.0-123			0.894	20
Chlorobenzene	0.125	0.118	0.118	94.2	94.6	79.0-121			0.428	20
Chlorodibromomethane	0.125	0.117	0.120	94.0	95.9	74.0-128			2.10	20
Chloroethane	0.125	0.129	0.123	103	98.5	51.0-147			4.55	20
Chloroform	0.125	0.0983	0.100	78.6	80.2	73.0-123			1.99	20
Chloromethane	0.125	0.137	0.140	109	112	51.0-138			2.16	20
2-Chlorotoluene	0.125	0.134	0.144	107	116	72.0-124			7.56	20
4-Chlorotoluene	0.125	0.148	0.157	119	126	78.0-120	J4		5.77	20
1,2-Dibromo-3-Chloropropane	0.125	0.112	0.139	89.6	111	65.0-126	J3		21.2	20
1,2-Dibromoethane	0.125	0.115	0.115	92.0	92.1	78.0-122			0.0191	20
Dibromomethane	0.125	0.111	0.118	89.2	94.1	79.0-120			5.36	20
1,2-Dichlorobenzene	0.125	0.119	0.135	94.9	108	80.0-120			13.0	20
1,3-Dichlorobenzene	0.125	0.119	0.130	94.9	104	72.0-123			8.97	20
1,4-Dichlorobenzene	0.125	0.107	0.118	85.3	94.2	77.0-120			9.93	20
Dichlorodifluoromethane	0.125	0.155	0.156	124	125	49.0-155			1.06	20
1,1-Dichloroethane	0.125	0.124	0.126	99.3	101	70.0-128			1.35	20
1,2-Dichloroethane	0.125	0.104	0.109	83.2	87.5	69.0-128			5.07	20
1,1-Dichloroethene	0.125	0.124	0.125	98.9	99.7	63.0-131			0.869	20
cis-1,2-Dichloroethene	0.125	0.126	0.129	101	104	74.0-123			2.57	20
trans-1,2-Dichloroethene	0.125	0.126	0.127	101	102	72.0-122			0.660	20
1,2-Dichloropropane	0.125	0.0983	0.0991	78.6	79.3	75.0-126			0.803	20
1,1-Dichloropropene	0.125	0.122	0.122	97.3	97.9	72.0-130			0.625	20
1,3-Dichloropropane	0.125	0.143	0.143	114	114	80.0-121			0.134	20
cis-1,3-Dichloropropene	0.125	0.151	0.151	121	121	80.0-125			0.265	20
trans-1,3-Dichloropropene	0.125	0.111	0.109	88.4	87.5	75.0-129			1.01	20
2,2-Dichloropropane	0.125	0.125	0.123	99.8	98.4	60.0-129			1.42	20
Di-isopropyl ether	0.125	0.151	0.157	121	125	62.0-133			3.78	20
Ethylbenzene	0.125	0.122	0.123	97.3	98.8	77.0-120			1.52	20
Hexachloro-1,3-butadiene	0.125	0.0982	0.111	78.5	88.6	68.0-128			12.1	20
n-Hexane	0.125	0.143	0.144	114	115	57.0-125			0.847	20
Isopropylbenzene	0.125	0.126	0.133	101	107	75.0-120			5.83	20
p-Isopropyltoluene	0.125	0.109	0.118	87.1	94.6	74.0-125			8.27	20
2-Butanone (MEK)	0.625	0.654	0.858	105	137	37.0-159	J3		27.1	21.3
Methylene Chloride	0.125	0.104	0.107	83.1	85.6	67.0-123			2.95	20
4-Methyl-2-pentanone (MIBK)	0.625	0.804	0.878	129	140	60.0-144			8.69	20

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1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc



## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3319831-1 06/21/18 09:01 • (LCSD) R3319831-2 06/21/18 09:21

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
Methyl tert-butyl ether	0.125	0.123	0.136	98.4	109	66.0-125			10.2	20
Naphthalene	0.125	0.100	0.128	80.4	102	64.0-125	J3		24.0	20
n-Propylbenzene	0.125	0.120	0.142	95.8	114	78.0-120			17.3	20
Styrene	0.125	0.130	0.138	104	110	78.0-124			5.41	20
1,1,2-Tetrachloroethane	0.125	0.102	0.106	81.9	84.7	74.0-124			3.27	20
1,1,2,2-Tetrachloroethane	0.125	0.0997	0.110	79.7	87.8	73.0-120			9.65	20
Tetrachloroethene	0.125	0.122	0.121	97.7	96.8	70.0-127			0.865	20
Toluene	0.125	0.119	0.118	95.2	94.8	70.0-120			0.504	20
1,2,3-Trichlorobenzene	0.125	0.0872	0.109	69.8	87.3	68.0-126	J3		22.3	20
1,2,4-Trichlorobenzene	0.125	0.0911	0.112	72.9	89.8	70.0-127	J3		20.7	20
1,1,1-Trichloroethane	0.125	0.115	0.117	92.1	93.5	69.0-125			1.52	20
1,1,2-Trichloroethane	0.125	0.125	0.124	100	99.2	78.0-120			1.00	20
Trichloroethene	0.125	0.112	0.115	89.7	91.7	79.0-120			2.17	20
Trichlorofluoromethane	0.125	0.124	0.123	99.1	98.2	59.0-136			0.971	20
1,2,3-Trichloropropane	0.125	0.114	0.126	91.3	100	73.0-124			9.56	20
1,2,4-Trimethylbenzene	0.125	0.105	0.116	84.0	92.6	75.0-120			9.75	20
1,3,5-Trimethylbenzene	0.125	0.116	0.127	93.2	101	75.0-120			8.47	20
Vinyl chloride	0.125	0.131	0.123	105	98.6	63.0-134			6.16	20
Xylenes, Total	0.375	0.409	0.420	109	112	77.0-120			2.65	20
(S) Toluene-d8				109	106	80.0-120				
(S) Dibromofluoromethane				93.7	95.4	74.0-131				
(S) a,a,a-Trifluorotoluene				97.0	96.5	80.0-120				
(S) 4-Bromofluorobenzene				107	108	64.0-132				

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss<sup>4</sup>Cn<sup>5</sup>Sr<sup>6</sup>Qc<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc

WG1127286

Semi-Volatile Organic Compounds (GC) by Method 8015B

## QUALITY CONTROL SUMMARY

ONE LAB. NATIONWIDE.

[L1002426-01,02,03,04,05,06,07,08,09](#)

## Method Blank (MB)

(MB) R3319925-1 06/21/18 19:18

Analyte	MB Result mg/kg	<u>MB Qualifier</u>	MB MDL mg/kg	MB RDL mg/kg
C10-C20 Hydrocarbons	U		0.610	4.00
C20-C34 Hydrocarbons	U		0.611	4.00
(S) o-Terphenyl	85.3			18.0-148

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3319925-2 06/21/18 19:31 • (LCSD) R3319925-3 06/21/18 19:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %
C10-C20 Hydrocarbons	25.0	20.0	18.8	80.1	75.1	50.0-150			6.50	20
C20-C34 Hydrocarbons	25.0	22.0	19.9	88.1	79.6	50.0-150			10.1	20
(S) o-Terphenyl			74.5	71.1		18.0-148				



## Method Blank (MB)

(MB) R3319611-3 06/20/18 13:26

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l														
Anthracene	U		0.0000140	0.0000500														
Acenaphthene	U		0.0000100	0.0000500														
Acenaphthylene	U		0.0000120	0.0000500														
Benzo(a)anthracene	U		0.00000410	0.0000500														
Benzo(a)pyrene	U		0.0000116	0.0000500														
Benzo(b)fluoranthene	U		0.00000212	0.0000500														
Benzo(g,h,i)perylene	U		0.00000227	0.0000500														
Benzo(k)fluoranthene	U		0.0000136	0.0000500														
Chrysene	U		0.0000108	0.0000500														
Dibenz(a,h)anthracene	U		0.00000396	0.0000500														
Fluoranthene	U		0.0000157	0.0000500														
Fluorene	U		0.00000850	0.0000500														
Indeno(1,2,3-cd)pyrene	U		0.0000148	0.0000500														
Naphthalene	0.0000276	J		0.0000198	0.000250													
Phenanthrene	U		0.00000820	0.0000500														
Pyrene	U		0.0000117	0.0000500														
1-Methylnaphthalene	U		0.00000821	0.000250														
2-Methylnaphthalene	0.00000938	J		0.00000902	0.000250													
2-Chloronaphthalene	U		0.00000647	0.000250														
(S) Nitrobenzene-d5	107			31.0-160														
(S) 2-Fluorobiphenyl	124			48.0-148														
(S) p-Terphenyl-d14	124			37.0-146														

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3319611-1 06/20/18 12:43 • (LCSD) R3319611-2 06/20/18 13:05

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	0.00200	0.00219	0.00213	110	107	64.0-142			2.84	20
Acenaphthene	0.00200	0.00221	0.00214	111	107	66.0-132			3.23	20
Acenaphthylene	0.00200	0.00219	0.00213	109	106	65.0-132			2.72	20
Benzo(a)anthracene	0.00200	0.00206	0.00197	103	98.6	59.0-134			4.45	20
Benzo(a)pyrene	0.00200	0.00210	0.00201	105	101	61.0-145			4.13	20
Benzo(b)fluoranthene	0.00200	0.00213	0.00194	106	96.9	57.0-136			9.36	20
Benzo(g,h,i)perylene	0.00200	0.00230	0.00219	115	109	54.0-140			4.87	20
Benzo(k)fluoranthene	0.00200	0.00207	0.00213	104	106	57.0-141			2.56	20
Chrysene	0.00200	0.00215	0.00206	108	103	63.0-140			4.39	20
Dibenz(a,h)anthracene	0.00200	0.00228	0.00216	114	108	49.0-141			5.14	20
Fluoranthene	0.00200	0.00223	0.00215	112	108	65.0-143			3.62	20



## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3319611-1 06/20/18 12:43 • (LCSD) R3319611-2 06/20/18 13:05

Analyte	Spike Amount mg/l	LCS Result mg/l	LCSD Result mg/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluorene	0.00200	0.00219	0.00212	109	106	64.0-129			3.09	20
Indeno(1,2,3-cd)pyrene	0.00200	0.00225	0.00214	113	107	53.0-141			5.00	20
Naphthalene	0.00200	0.00207	0.00200	103	100	68.0-129			3.26	20
Phenanthrene	0.00200	0.00219	0.00211	110	105	62.0-132			4.06	20
Pyrene	0.00200	0.00206	0.00199	103	99.4	58.0-156			3.43	20
1-Methylnaphthalene	0.00200	0.00209	0.00202	105	101	68.0-137			3.35	20
2-Methylnaphthalene	0.00200	0.00199	0.00192	99.6	96.0	68.0-134			3.66	20
2-Chloronaphthalene	0.00200	0.00222	0.00216	111	108	65.0-129			2.86	20
(S) Nitrobenzene-d5				102	95.7	31.0-160				
(S) 2-Fluorobiphenyl				120	111	48.0-148				
(S) p-Terphenyl-d14				117	108	37.0-146				

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss<sup>4</sup>Cn<sup>5</sup>Sr<sup>6</sup>Qc<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc

## L1002426-11 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1002426-11 06/20/18 18:53 • (MS) R3319611-4 06/20/18 19:15 • (MSD) R3319611-5 06/20/18 19:37

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.00200	0.000353	0.00234	0.00248	99.4	106	1	60.0-142		5.90	20
Acenaphthene	0.00200	0.000273	0.00233	0.00234	103	104	1	46.0-149		0.743	20
Acenaphthylene	0.00200	ND	0.00215	0.00214	108	107	1	54.0-142		0.614	20
Benzo(a)anthracene	0.00200	0.0000779	0.00196	0.00207	94.2	99.7	1	55.0-134		5.40	20
Benzo(a)pyrene	0.00200	0.0000610	0.00190	0.00208	91.8	101	1	58.0-136		9.20	20
Benzo(b)fluoranthene	0.00200	0.0000958	0.00188	0.00210	89.3	100	1	54.0-130		11.0	20
Benzo(g,h,i)perylene	0.00200	ND	0.00190	0.00209	92.6	102	1	46.0-135		9.57	20
Benzo(k)fluoranthene	0.00200	ND	0.00195	0.00194	97.3	97.2	1	52.0-131		0.0823	20
Chrysene	0.00200	0.000112	0.00199	0.00209	94.1	99.0	1	55.0-137		4.80	20
Dibenz(a,h)anthracene	0.00200	ND	0.00183	0.00202	90.5	100	1	36.0-140		9.94	20
Fluoranthene	0.00200	0.000333	0.00216	0.00232	91.5	99.5	1	58.0-144		7.13	20
Fluorene	0.00200	0.000703	0.00271	0.00274	100	102	1	49.0-142		1.25	20
Indeno(1,2,3-cd)pyrene	0.00200	ND	0.00182	0.00202	89.1	99.1	1	46.0-134		10.5	20
Naphthalene	0.00200	ND	0.00202	0.00196	95.6	92.6	1	29.0-154		3.06	20
Phenanthrene	0.00200	0.000171	0.00213	0.00216	97.9	99.4	1	44.0-145		1.46	20
Pyrene	0.00200	0.000644	0.00240	0.00267	87.8	101	1	62.0-150		10.7	20
1-Methylnaphthalene	0.00200	ND	0.00202	0.00198	97.5	95.5	1	26.0-160		2.04	20
2-Methylnaphthalene	0.00200	ND	0.00192	0.00188	92.7	91.1	1	51.0-150		1.69	20
2-Chloronaphthalene	0.00200	ND	0.00209	0.00204	104	102	1	57.0-136		2.21	20
(S) Nitrobenzene-d5					94.6	96.7		31.0-160			
(S) 2-Fluorobiphenyl					108	110		48.0-148			
(S) p-Terphenyl-d14					106	109		37.0-146			



## Method Blank (MB)

(MB) R3319569-3 06/20/18 15:55

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg										
Anthracene	U		0.000600	0.00600										
Acenaphthene	U		0.000600	0.00600										
Acenaphthylene	U		0.000600	0.00600										
Benzo(a)anthracene	U		0.000600	0.00600										
Benzo(a)pyrene	U		0.000600	0.00600										
Benzo(b)fluoranthene	U		0.000600	0.00600										
Benzo(g,h,i)perylene	U		0.000600	0.00600										
Benzo(k)fluoranthene	U		0.000600	0.00600										
Chrysene	U		0.000600	0.00600										
Dibenz(a,h)anthracene	U		0.000600	0.00600										
Fluoranthene	U		0.000600	0.00600										
Fluorene	U		0.000600	0.00600										
Indeno(1,2,3-cd)pyrene	U		0.000600	0.00600										
Naphthalene	U		0.00200	0.0200										
Phenanthrene	U		0.000600	0.00600										
Pyrene	U		0.000600	0.00600										
1-Methylnaphthalene	U		0.00200	0.0200										
2-Methylnaphthalene	U		0.00200	0.0200										
2-Chloronaphthalene	U		0.00200	0.0200										
(S) Nitrobenzene-d5	59.7			14.0-149										
(S) 2-Fluorobiphenyl	72.3			34.0-125										
(S) p-Terphenyl-d14	84.2			23.0-120										

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss<sup>4</sup>Cn<sup>5</sup>Sr<sup>6</sup>Qc<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3319569-1 06/20/18 15:11 • (LCSD) R3319569-2 06/20/18 15:33

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Anthracene	0.0800	0.0730	0.0742	91.2	92.7	50.0-125			1.65	20
Acenaphthene	0.0800	0.0698	0.0711	87.3	88.9	52.0-120			1.85	20
Acenaphthylene	0.0800	0.0719	0.0730	89.9	91.3	51.0-120			1.55	20
Benzo(a)anthracene	0.0800	0.0699	0.0696	87.4	87.0	46.0-121			0.428	20
Benzo(a)pyrene	0.0800	0.0584	0.0633	73.1	79.1	42.0-121			7.91	20
Benzo(b)fluoranthene	0.0800	0.0709	0.0712	88.6	89.0	42.0-123			0.528	20
Benzo(g,h,i)perylene	0.0800	0.0697	0.0733	87.2	91.6	43.0-128			5.00	20
Benzo(k)fluoranthene	0.0800	0.0697	0.0774	87.1	96.8	45.0-128			10.5	20
Chrysene	0.0800	0.0725	0.0734	90.6	91.7	48.0-127			1.19	20
Dibenz(a,h)anthracene	0.0800	0.0698	0.0731	87.3	91.4	43.0-132			4.65	20
Fluoranthene	0.0800	0.0754	0.0767	94.3	95.8	49.0-129			1.65	20



L1002426-01,02,03,04,05,06,07,13,14,15,16

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3319569-1 06/20/18 15:11 • (LCSD) R3319569-2 06/20/18 15:33

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Fluorene	0.0800	0.0723	0.0732	90.3	91.5	50.0-120			1.24	20
Indeno(1,2,3-cd)pyrene	0.0800	0.0692	0.0728	86.5	91.0	44.0-131			5.16	20
Naphthalene	0.0800	0.0702	0.0718	87.8	89.7	50.0-120			2.18	20
Phenanthrene	0.0800	0.0713	0.0722	89.1	90.2	48.0-120			1.19	20
Pyrene	0.0800	0.0713	0.0718	89.1	89.7	48.0-135			0.676	20
1-Methylnaphthalene	0.0800	0.0697	0.0719	87.1	89.8	52.0-122			3.06	20
2-Methylnaphthalene	0.0800	0.0701	0.0718	87.7	89.8	52.0-120			2.40	20
2-Chloronaphthalene	0.0800	0.0704	0.0714	88.0	89.2	50.0-120			1.36	20
(S) Nitrobenzene-d5				78.1	92.1	14.0-149				
(S) 2-Fluorobiphenyl				73.7	84.3	34.0-125				
(S) p-Terphenyl-d14				79.8	80.0	23.0-120				

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 GI

8 Al

9 Sc

## L1002613-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1002613-02 06/20/18 19:56 • (MS) R3319569-4 06/20/18 20:18 • (MSD) R3319569-5 06/20/18 20:40

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Anthracene	0.0800	ND	0.0626	0.0682	78.2	85.2	1	20.0-136		8.55	24
Acenaphthene	0.0800	ND	0.0589	0.0644	73.7	80.5	1	29.0-124		8.87	20
Acenaphthylene	0.0800	ND	0.0583	0.0635	72.8	79.4	1	35.0-120		8.60	20
Benzo(a)anthracene	0.0800	ND	0.0564	0.0609	70.5	76.1	1	13.0-132		7.63	27
Benzo(a)pyrene	0.0800	ND	0.0604	0.0646	75.4	80.8	1	14.0-138		6.80	27
Benzo(b)fluoranthene	0.0800	ND	0.0578	0.0625	72.3	78.1	1	10.0-129		7.69	31
Benzo(g,h,i)perylene	0.0800	ND	0.0405	0.0367	50.7	45.8	1	10.0-133		10.0	30
Benzo(k)fluoranthene	0.0800	ND	0.0644	0.0730	80.4	91.2	1	15.0-131		12.5	27
Chrysene	0.0800	ND	0.0606	0.0654	75.8	81.8	1	15.0-137		7.62	25
Dibenz(a,h)anthracene	0.0800	ND	0.0467	0.0431	58.4	53.9	1	15.0-132		8.08	27
Fluoranthene	0.0800	ND	0.0587	0.0640	73.4	80.0	1	13.0-139		8.60	28
Fluorene	0.0800	ND	0.0585	0.0632	73.2	79.0	1	27.0-122		7.73	22
Indeno(1,2,3-cd)pyrene	0.0800	ND	0.0435	0.0398	54.4	49.7	1	11.0-133		9.06	29
Naphthalene	0.0800	ND	0.0601	0.0667	75.1	83.4	1	18.0-136		10.5	21
Phenanthrene	0.0800	ND	0.0593	0.0647	74.1	80.8	1	15.0-133		8.64	25
Pyrene	0.0800	ND	0.0613	0.0662	76.7	82.8	1	11.0-146		7.65	29
1-Methylnaphthalene	0.0800	ND	0.0581	0.0654	72.6	81.7	1	24.0-137		11.7	22
2-Methylnaphthalene	0.0800	ND	0.0590	0.0654	73.7	81.8	1	23.0-136		10.4	22
2-Chloronaphthalene	0.0800	ND	0.0591	0.0653	73.9	81.7	1	36.0-120		10.0	20
(S) Nitrobenzene-d5					66.5	79.9		14.0-149			
(S) 2-Fluorobiphenyl					64.0	77.9		34.0-125			
(S) p-Terphenyl-d14					61.7	72.5		23.0-120			



## Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

### Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].	<sup>1</sup> Cp
MDL	Method Detection Limit.	<sup>2</sup> Tc
ND	Not detected at the Reporting Limit (or MDL where applicable).	<sup>3</sup> Ss
RDL	Reported Detection Limit.	<sup>4</sup> Cn
RDL (dry)	Reported Detection Limit.	<sup>5</sup> Sr
Rec.	Recovery.	<sup>6</sup> Qc
RPD	Relative Percent Difference.	<sup>7</sup> GI
SDG	Sample Delivery Group.	<sup>8</sup> AI
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.	<sup>9</sup> SC
U	Not detected at the Reporting Limit (or MDL where applicable).	
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.	
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.	
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.	
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.	
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.	
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.	
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.	
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.	
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.	
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.	
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.	

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

\* Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

## State Accreditations

Alabama	40660
Alaska	17-026
Arizona	AZ0612
Arkansas	88-0469
California	2932
Colorado	TN00003
Connecticut	PH-0197
Florida	E87487
Georgia	NELAP
Georgia <sup>1</sup>	923
Idaho	TN00003
Illinois	200008
Indiana	C-TN-01
Iowa	364
Kansas	E-10277
Kentucky <sup>16</sup>	90010
Kentucky <sup>2</sup>	16
Louisiana	AI30792
Louisiana <sup>1</sup>	LA180010
Maine	TN0002
Maryland	324
Massachusetts	M-TN003
Michigan	9958
Minnesota	047-999-395
Mississippi	TN00003
Missouri	340
Montana	CERT0086

Nebraska	NE-OS-15-05
Nevada	TN-03-2002-34
New Hampshire	2975
New Jersey-NELAP	TN002
New Mexico <sup>1</sup>	n/a
New York	11742
North Carolina	Env375
North Carolina <sup>1</sup>	DW21704
North Carolina <sup>3</sup>	41
North Dakota	R-140
Ohio-VAP	CL0069
Oklahoma	9915
Oregon	TN200002
Pennsylvania	68-02979
Rhode Island	LA000356
South Carolina	84004
South Dakota	n/a
Tennessee <sup>14</sup>	2006
Texas	T 104704245-17-14
Texas <sup>5</sup>	LAB0152
Utah	TN00003
Vermont	VT2006
Virginia	460132
Washington	C847
West Virginia	233
Wisconsin	9980939910
Wyoming	A2LA

## Third Party Federal Accreditations

A2LA – ISO 17025	1461.01
A2LA – ISO 17025 <sup>5</sup>	1461.02
Canada	1461.01
EPA-Crypto	TN00003

AIHA-LAP,LLC EMLAP	100789
DOD	1461.01
USDA	P330-15-00234

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>6</sup> Wastewater n/a Accreditation not applicable

## Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



- <sup>1</sup> Cp
- <sup>2</sup> Tc
- <sup>3</sup> Ss
- <sup>4</sup> Cn
- <sup>5</sup> Sr
- <sup>6</sup> Qc
- <sup>7</sup> Gl
- <sup>8</sup> Al
- <sup>9</sup> Sc

Company Name/Address:

TIL Associates  
1915 N. 12<sup>th</sup> Street  
Toledo, OH 43604

Billing Information:

Sue

Report to: Paul Chusco

Email to: pchusco@tilassoc.com

Project Description: Zepf

City/Sate Collected Toledo, OH

Phone: 419-214-5030

FAX: 419-214-5031

Collected by: (print) Paul Chusco

Client Project #:

ESC Key:

Collected by (signature):

Immediately Packed on Ice N Y

Rush? (Lab MUST Be Notified)

Same Day..... 200%  
 Next Day..... 100%  
 Two Day..... 50%  
 Three Day..... 25%

Date Results Needed:

Email? No Yes  
 FAX? No Yes

No. of Cntrs

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	BTEX	pH	TPH-Gro	TPH-Dro	VOC	Cyanide	CoCode	(lab use only)
GB-1 (4-8)	G	Soil	4'-8'	6/14/18	1105	2	X	X	X X				-01
GB-2 (4-8)	G	Soil	4'-8'		1135	2	X	X	X X				-02
GB-3 (4-8)	G	Soil	4'-8'		1200	2	X	X	X X		X		-03
GB-5 (2-4)	G	Soil	2'-4'		1450	1	X		X X		X		-04
GB-6 (2-4)	G	Soil	2'-4'		1345	1	X		X X		X		-05
GB-7 (8-10)	G	Soil	8'-10'		1950	1	X		X X		X		-06
Dup 1	G	Soil	—		—	1	X		X X		X		-07
Dup 2	G	Soil	—		—	2		X	X X	X X			-08
GB-8 (4-6)	G	Soil	4'-6'	6/14/18	1615	6	X	X	X X		MS/MSD		-09

\*Matrix: SS - Soil/Solid GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

pH \_\_\_\_\_ Temp \_\_\_\_\_

Remarks:

Flow \_\_\_\_\_ Other \_\_\_\_\_

Relinquished by: (Signature)	Date: 6/15/18	Time: 1400	Received by: (Signature)	Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier	Condition: (lab use only)
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 015 <sup>o</sup> F	Bottles Received: 53 CoC Seals Intact Y N NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 6/16/18	pH Checked: NCF Yes

Chain of Custody  
Page 1 of 112065 Lebanon Road  
Mt. Juliet, TN 37122Phone: (800) 767-5859  
Phone: (615) 758-5858  
Fax: (615) 758-5859

Company Name/Address: TTL Associates Inc. 1915 N. 12 <sup>th</sup> street Toledo, OH 43604		Billing Information:		Analysis / Container / Preservative								Chain of Custody Page 2 of 7			
Report to: Paul Chusco		Email To: pchusco@ttaosse.com										<b>ESC</b> L-A-B S-C-I-E-N-C-E-S			
Project: Description: Zepf		City/State Collected:										YOUR LAB OF CHOICE			
Phone: 419 214-5030 Fax: 419 214-5031	Client Project #		Lab Project #										12065 Lebanon Rd Mount Juliet, TN 37122 Phone: 615-758-5858 Phone: 800-767-5859 Fax: 615-758-5859		
Collected by (print): Paul Chusco	Site/Facility ID #		P.O. #										L#		
Collected by (signature): <i>PC</i>	Rush? (Lab MUST Be Notified)		Date Results Needed										Table #		
Immediately Packed on Ice N <u>Y</u>	Same Day ..... 200% Next Day ..... 100% Two Day ..... 50% Three Day ..... 25%		Email? No Yes FAX? No Yes		No. cf Ctnrs									Acctnum:	
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	PAH	Cyanide							Template:	
GIB-5 W	G	GW	-	6-14-18	1515	X	X							Prelogin:	
GIB-6 W	G	GW	-	6-14-18	1420	X	X							TSR:	
GIB-7 W (Duplicate)	G	GW	-	6-14-18	-	X	X							PB:	
GIB-9 (8-10)	G	Soil	B-10	6-15-18	1005	X	X							Shipped Via:	
GIB-10 (6-8)	G	Soil	6-8'	-	1040	Z	X							Res. Contamination Temp 115 (Inches)	
GIB-11 (4-8)	G	Soil	4-8'	-	1100	Z	X							MS/MSD PAH -10	
GIB-12 (0-4)	G	Soil	0-1'	-	1205	Z	X							MS/MSD Cyanide -11	
GIB-9 W	G	GW	-	6-15-18	1015	Z	X							-12	
GIB-11 W	G	GW	-	6-15-18	1120	Z	X							73	
GIB-12 W	G	GW	-	6-15-18	1225	Z	X							-14	
* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other										pH	Temp				
Remarks:										Flow	Other	Hold #			
Relinquished by: (Signature) <i>PC</i>		Date: 6-15-18	Time: 1400	Received by: (Signature)				Samples returned via: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/>				Condition: (lab use only)			
Relinquished by: (Signature)		Date:	Time:	Received by: (Signature)				Temp: 65 <sup>o</sup> F Bottles Received: 53				COC Seal Intact: Y N NA			
Relinquished by: (Signature)		Date:	Time:	Received for lab by: (Signature)				Date: 6/15/18 Time: 0845				pH Checked: INCF: YES			

ESC LAB SCIENCES  
Cooler Receipt Form

Client: TTL TO H	SDG#	1002426	
Cooler Received/Opened On: 6/15 /18	Temperature:	0.5	
Received By: Eric Struck			
Signature: 			
Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	/	/	
COC Signed / Accurate?		/	
Bottles arrive intact?		/	
Correct bottles used?		/	
Sufficient volume sent?		/	
If Applicable			
VOA Zero headspace?		/	
Preservation Correct / Checked?		/	

**ESC Lab Sciences**  
**Non-Conformance Form**

Login #:1002426	Client:TTLTOH	Date:06/16/18	Evaluated by: Matthew Lockhart
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**Non-Conformance (check applicable items)**

Non-Conformance (check applicable items)		Chain of Custody Clarification	If Broken Container:
Sample Integrity	Parameter(s) past holding time	Login Clarification Needed	
Improper temperature	Chain of custody is incomplete		Insufficient packing material around container
Improper container type	Please specify Metals requested.		Insufficient packing material inside cooler
X Improper preservation	Please specify TCLP requested.		Improper handling by carrier (FedEx / UPS / Courier)
Insufficient sample volume.	Received additional samples not listed on coc.	Sample was frozen	
Sample is biphasic.	Sample ids on containers do not match ids on coc	Container lid not intact	
Vials received with headspace.	Trip Blank not received.		If no Chain of Custody:
Broken container	Client did not "X" analysis.	Received by:	
Broken container:	Chain of Custody is missing.	Date/Time:	
Sufficient sample remains		Temp./Cont. Rec./pH:	
		Carrier:	
		Tracking#	

**Login Comments:** 1) Client did not preserve cyanide containers. Containers preserved 06/16/18 1624.

2) Client sent CN sample for GW in clear containers instead of Amber containers.

Client informed by:	Call	Email	Voice Mail	Date: 6/18/18	Time: 0930
TSR Initials: MB	Client Contact: Paul C				

**Login Instructions:**

- 1) Client notified – proceed with analysis
- 2) GW is OK to be rec'd in clear container – proceed with analysis

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